THE Soybean Digest

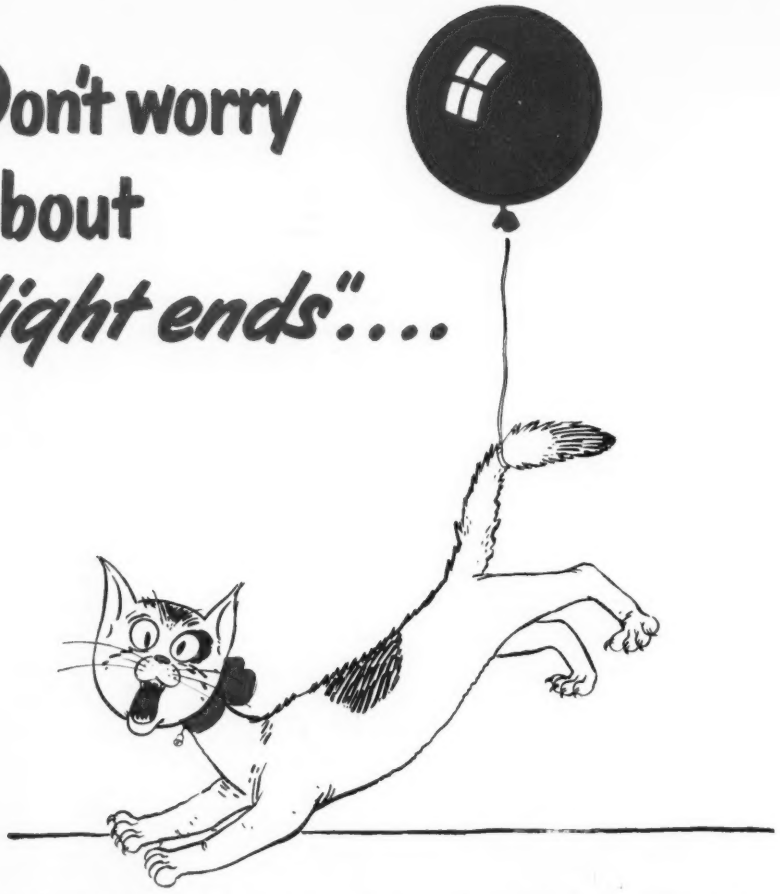
Merry Christmas to Each and All

Official Publication

AMERICAN SOYBEAN ASSOCIATION

VOLUME 11 • NUMBER 4 DECEMBER • 1950

Don't worry about "light ends"....



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THE Soybean Digest

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HUDSON, IOWA

Business, publication and circulation offices, Hudson, Iowa. Editor, Geo. M. Strayer. Managing Editor, Kent Pellett. Business Manager, Geo. McCulley. Director of Circulation, Gene Taylor.

Advertising representatives: Ewing Hutchison Co., 35 E. Wacker Drive, Chicago 1, Ill.

Vol. 11 DECEMBER ☆ 1950 No. 2

Published on the 10th of each month at Hudson, Iowa, by the American Soybean Association. Entered as second class matter November 20, 1940, at the postoffice at Hudson, Iowa, under the Act of March 3, 1879. Forms close on 25th of month preceding. Subscription price to association members, $2.50 per year; to non-members, $3.00 per year; Canada and other members of the Pan-American Union, $3.50; other foreign, $4.00.

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THE AMERICAN SOYBEAN ASSOCIATION

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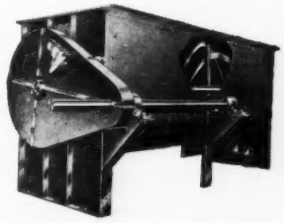

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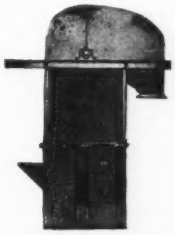

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EDITOR'S DESK

THE NEXT MOVE IS UP TO THE GROWERS

Recent decision by the National Soybean Processors Association to invest funds and effort in a campaign to promote wider and more efficient usage of soybean oil meal is to be commended. Those of us who started talking last spring about oversupplies of soybean meal when the 1950 crop reached the market did not foresee the Korean episode nor its effects upon markets. Strong markets have existed since the crop movement began.

The soybean industry has a tremendous educational and sales job to do. Today the education is the important phase, but tomorrow the sales job will be even more important.

Opportunity and avenues of approach on the educational program exist. Every week we receive at this office requests from farm magazines for material to be used in the preparation of stories. We shall continue to give every possible assistance to those requests.

We will also cooperate in every way possible with the Processors Association and their program of education and promotion. We take a certain amount of justifiable pride in having awakened them to the need, and created their decision to do something about it.

The American Soybean Association has a problem to be faced now—what form will our contribution to an over-all program of education, legislation and promotion take? The Processors Association is putting money behind their decision. What are the growers going to do about it? Shoulder their share? Or let somebody else carry the load? Increased usage benefits the grower as well as the processor. Are we ready to do something about financing such moves, other than pure talk? Now is the time for decision!

HOUSEWIFE WILL HAVE FINAL SAY HERE

Resistance to change is a very natural thing. Retention of the status quo is always desirable to the person or company in a position of prominence. No-one wants to see replacement of even a small portion of a market they consider theirs.

Recent weeks have seen much attention focused upon wheat millers and bakers, as a result of the announcement of proposed bread standards and of the hearings being held by the committee of the House of Representatives on the usage of chemicals in foods.

Wheat millers have been accused of wanting bread made from "white flour, water and air," of resisting changes which would increase nutritive values and even palatability of breads. Criticisms have flown freely because of failure to recognize that new nutritional knowledge shows wheat proteins to be lacking in some factors.

Before World War II the soybean industry representatives presented to Food and Drug Administration information based upon factual research. After a period of nearly 10 years that information is now being used by consumer groups in their battle for better bread. Women's organizations are taking up the cudgels, demanding that their families be supplied with maximum nutritional qualities in the bread they eat.

Only a relatively small amount of soy flour would be required. No great threat to wheat flour markets is posed. But we believe it would be the part of wisdom for the wheat flour folks to publicly recognize current knowledge, capitalize on it, rather than trying to fight a trend which will not be reversed. *The butter folks once thought they had a monopoly on yellow color, too.* The American housewife decided differently. She will decide this battle, too. It is our bet she is going to buy bread with soy flour in it —if that is what she wants.

WILL SOYBEAN PRICES GO MUCH HIGHER?

Number one question among soybean processors and handlers now seems to be "How high must soybean prices go before the crop will move out of storage?" Prices have moved up—the predicted $2.50 level necessary to bring out the beans has been reached—but still no appreciable movement. The $3 level has been approached, but still no crop movement of proportions.

If there are lessons to be learned from this year's soybean marketing pattern they include:

1—Farmers will store soybeans on the farm and at country points if they are convinced it will be profitable to do so.

2—Storage can be provided or improvised when it is profitable to do so.

3—Buyers will fare better to pay reasonable prices at time of harvest, rather than trying to depress prices to levels as low as possible. Once soybeans go into storage competition starts price levels moving upward. As long as the upward movement continues there is very little selling. A fair average price paid at time of harvest will normally be at lower levels than the price necessary to bring soybeans out of storage after harvest.

4—The buyer who paid favorable prices at harvest has his bins full.

5—The buyer who tried to wait for the low has his bins only partially filled, is paying much higher prices now.

6—In this case a sizable acreage increase has not meant lower prices.

7—In a war or "defense" economy many things are unpredictable.

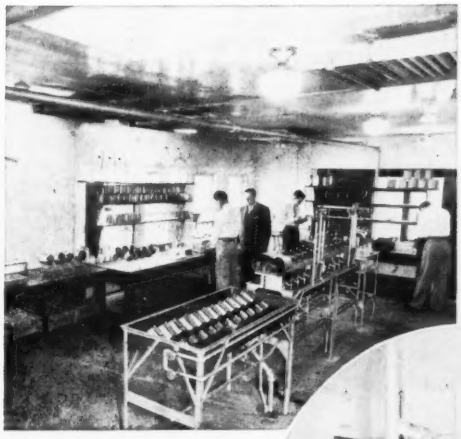
Soybean growers who have stored soybeans are now faced with a decision more touchy than any they have made to date—"when shall they sell?" Will there be a softening in prices? Will prices advance sufficiently after Jan. 1 to cover the increased income tax? And the interest, insurance, other items? If you are located in a state where soybeans on hand are subject to personal tax, will contemplated price increases justify holding? Price advances of nearly $1 have made much paper profit. How and when should you cash in on it?

Some persons are predicting price recessions. Others see $4 soybeans before June. Some feel that storage may have been oversold. Others see general upward price trends, with soybeans following.

We can only say that in troubled times, with World War III staring us in the face, defense production going upward, shortages of materials showing up, prices are more likely to go too high than too low. It is anybody's guess—we hope yours is the winning one.

To all our friends in the soybean industry the staff of the Soybean Digest extends the warmest of holiday greetings and sincere best wishes for the coming year.

Serving The Soybean Industry



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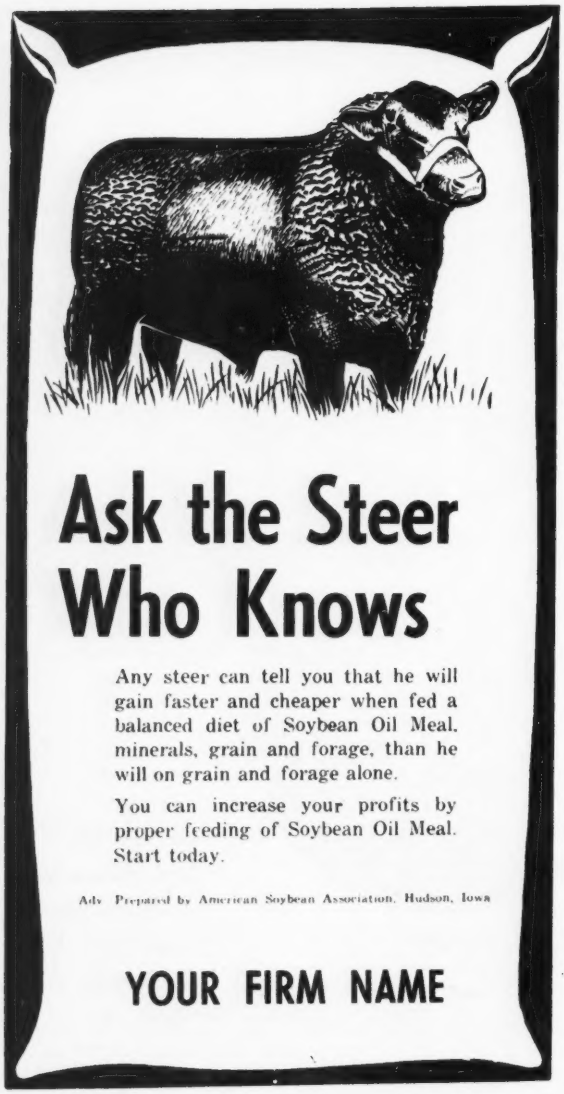
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The ads have been specially written for feed dealers, processors, elevators and others for newspaper use.

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ACTIVITIES OF YOUR ASSOCIATION

"Food Can Stop Communism"

Food is the one weapon that can stop communism in its tracks, Geo. M. Strayer, secretary-treasurer of the American Soybean Association, told the 475 people who attended the annual meeting of the Big 4 Cooperative Processing Association at Sheldon, Iowa, Nov. 16.

Strayer said that people who cannot get enough to eat will solve their problem by one method or another, and will adopt communism and go to war if necessary. Since the primary food need of both Europeans and Asiatics is fats and proteins, of which soybeans are the cheapest large-quantity source, soybeans can play a major role in solving the world's hunger problem.

One of the primary aims of the American Soybean Association is promotion of sizable exports of soybeans and soybean products abroad for this purpose, according to Strayer.

Managers and directors of the 35 member elevators of the Big 4 Cooperative Processing Association were present at the meeting.

Manager Charles W. Hanson reported that the Association has handled 7 million bushels of soybeans during its 7 years of operation, and that it has processed 4 million bushels. During the past fiscal year 760,505 bushels were crushed.

Report to Processor Group

Report of the American Soybean Association's activities and its benefits to producers during the past year was handed out at the annual meeting of the North Iowa Cooperative Processing Association at Manly, Iowa, Dec. 4.

The report was in the form of a special ASA News Letter for producers and recounted the year's actions of the Association which included: request to USDA Secretary Brannan for announcement of a support price on 1950-crop soybeans *before harvest;* staving off acreage allotments by USDA on 1950-crop soybeans; promotion of export of 64 million bushels of soybeans abroad since the war; opposition to increase by Southern railroads of freight rates on soybeans shipped to New Orleans for export; work for repeal of federal margarine laws, and changes in the federal bread standards favorable to increased usage of soy products in baked goods.

Meeting was held in the VFW Building in Mason City, Iowa, with managers and directors of member associations present.

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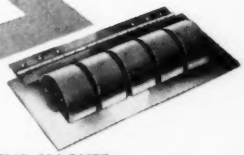

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Attend Delta Rate Hearing

American Soybean Association representatives and a number of individuals from the affected area are attending the hearing before the Interstate Commerce Commission on the proposed export rate increase by Southwest Line railroads in Memphis, Tenn., Dec. 12.

The rate proposed by the railroads is 25c-per-cwt. on soybeans shipped from Missouri and Arkansas to New Orleans, and is a 5½c increase over the prevailing rate.

The American Soybean Association has been fighting the increase for the producers in the area.

The Southern Freight Association has proposed a similar increase in export freight rates on soybeans shipped east of the Mississippi River to New Orleans.

Praise for Missouri Group

Missouri soybean producers were complimented for storing so large a part of their 1950 crop by Paul C. Hughes, field service director of the American Soybean Association, at the Soybean Festival at Mexico, Mo., Nov. 16.

Hughes said the fact that so many producers held their beans had a lot to do with the favorable market this fall. He described the ASA program and told about the actions taken by the Association for the benefit of Missouri and other areas during the past year.

Other speakers included Carl V. Feaster and A. W. Klemme of the Agricultural Experiment Station at Columbia, Mo.

Map Margarine Repeal Plan

Plans for repeal of the remaining legal barriers to the sale of margarine were mapped at a meeting of the American Soybean Association, the National Cotton Council and the National Association of Margarine Manufacturers in Chicago Dec. 7. Fourteen states still retain restrictions on the sale of margarine.

Efforts of the three groups will be directed next toward repeal of the Illinois law banning the sale of yellow margarine, it was decided.

ASA representatives included Secretary-Treasurer Geo. M. Strayer and directors Ersel Walley, Fort Wayne, Ind.; LeRoy Pike, Pontiac, Ill.; and C. G. Simcox, Assumption, Ill.

—sbd—

REPEALS MARGARINE LAW

Yellow margarine, outlawed by more than half a century in Michigan, was swept back on the grocers' shelves in that state by a more than two to one majority in the Nov. 7 election.

Thus, Michigan became the 34th state to make sale of yellow margarine legal. Yellow margarine was legally sold in the state beginning Dec. 7, by ruling of the secretary of state.

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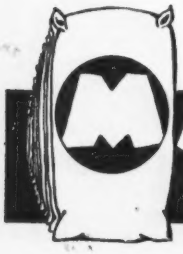

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GROWERS

Soybeans in North Dakota

In North Dakota soybean production is confined largely to the southeastern section of the state, according to T. E. Stoa, agronomist at North Dakota Agricultural College, Fargo. It is the area in the state with most favorable temperature, the longest growing season and generally satisfactory rainfall, he says.

In some years early soybeans may also ripen satisfactorily in other areas. But in the drier sections the crop will usually be short, difficult to harvest and the yield small. Experimental evidence and farm experience suggest that interest in soybean production should be confined largely to the southeastern section and perhaps other local communities where growing corn for mature grain is a dependable practice. In other areas, except for the production of some high protein roughage for feed, soybeans will probably not be satisfactory.

In 1937 when soybeans were first grown and harvested on a commercial basis in North Dakota, Minsoy was the only early ripening variety available. It could be depended on to mature in most of the years in the better adapted sections of Richland County but usually left no margin in case of a slow ripening season or an early frost. Minsoy, although yielding quite satisfactorily, lacked some in plant height, lodged easily, bore pods near to the ground and thus could not always be harvested easily.

Since then a number of earlier ripening varieties have become available, affording a larger choice in varieties to grow. Those with promise are:

Early Mandarin, one of the varieties best suited to the area and now grown quite extensively. Matures several days earlier than Minsoy. Stands up well for combining and yields quite satisfactorily. Norsoy and Pridesoy are names for a variety very similar to, if not identical to Early Mandarin.

Goldsoy, one of the better varieties for use in the region. Matures about the same time as Early Mandarin and yields about as well or slightly less.

Flambeau may not yield quite as well as Early Mandarin or Goldsoy in years and areas favorable for

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For the South, we recommend the OGDEN, the S-100 and where adapted, the WABASH which yields about as well as the S-100 and has about the same maturity but has a much higher oil content.

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Harvesting soybeans in Richland County, N. Dak., this fall.

How the Leading Early Ripening Varieties of Soybeans Have Compared in Yield in Trials at Fargo, 1943 to 1949, with Averages Since 1940.

	Yield in bushels per acre							Average		
Variety	1943	1944	1945	1946	1947	1948	1949	1946 to 1949	1943 to 1949	1940 to 1949
Minsoy	9.9	22.3	19.0	14.6	18.7	10.6	18.0	15.5	16.2	17.6
Early Mandarin (Ottawa)	11.8	21.9	20.8	16.3	19.2	20.6	21.6	19.4	18.9	18.8
Norsoy	14.2	24.9	20.5	17.2	18.8	19.1	22.4	19.4	19.6	----
Goldsoy	17.9	18.0	22.8	14.3	18.2	21.3	15.7	17.4	18.3	----
Early Manchu	9.7	24.0	23.5	17.0	21.9	22.6	23.3	21.2	20.3	20.7
Kabott	16.5	13.9	18.0	12.8	13.2	13.3	16.0*	13.8	14.8	15.6
Early White Eyebrow	17.0	19.7	21.2	14.0	----	----	----	----	----	----
Flambeau	----	----	----	13.8	13.2	17.5	18.8	15.8	----	----

*Est. yield for 1949.

good soybean yields, but its greater earliness should increase the chances for maturity and yield in more marginal areas.

Kabott is earlier than the other varieties but lacks some in plant height and capacity to yield, so is not recommended except where earliness is most essential.

Early Manchu is an excellent yielding variety but is too late to assure satisfactory maturity except in the more southeastern sections of the state or in very favorable seasons.

Capital compares satisfactorily with Early Mandarin in yield, but is later in ripening, also slightly later than Early Manchu.

At the Edgeley substation where summer drouths are more common, conditions have been less favorable than at Fargo and the results have been somewhat disappointing.

See, "Growing Soybeans in North Dakota," by T. E. Stoa, Bimonthly Bulletin, North Dakota Agricultural Experiment Station, Fargo, N. D. Vol. XII, No. 4. Mar.-Apr. 1950.

Blackhawk on Muck Soils

The new variety, Blackhawk, announced in these pages in November, is especially adapted for growers in the marshland of the Kankakee Valley and in the numerous muck soils of northern Indiana, according to A. H. Probst and G. H. Cutler, Purdue agronomists.

Under growth conditions usually obtained on muck soil and in the Kankakee Valley in general the new variety should give no combining difficulties. On soils of average or better fertility it pods sufficiently high off the ground to permit easy combining.

Blackhawk has always outyielded Hawkeye on muck soils, but where Hawkeye matures fully as on mineral (upland) soils Hawkeye yields more. The same is true of Earlyana. On mineral soils it outyields Blackhawk.

Soybean Straw as a Mulch

Soybean straw is recommended as a winter mulch for strawberry plants by Ed Cott, extension horticulturist at Iowa State College, Ames, Iowa.

Cott recommends soybean straw because it is relatively free from weed seed. When seed is present in the mulch it means more weeds in the strawberry patch next year. Oat straw is his second choice.

He says that the mulch should be put on before temperatures go below 15 degrees.

—Photo courtesy Decatur Herald and Review

Twenty-six farmers volunteered farm implements and labor to combine 70 acres of soybeans for Mr. and Mrs. Lee Shaw, Weldon, Ill., who were with their 8-year-old son, Berwyn, in a St. Louis hospital, with severe burns. Farmers line up with six combines and 15 wagons used in the harvest Oct. 18.

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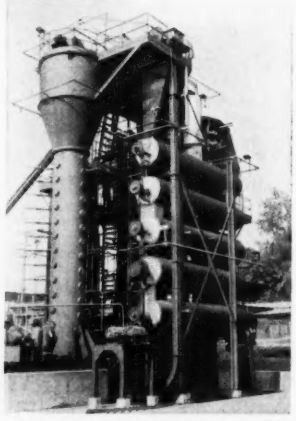

Exsolex installation at Red Wing, Minn.

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Soybeans at Fiskeby being harvested with the combine.

Soybean Trials in Sweden

By SVEN HOLMBERG
Algot Holmberg & Soner A-B
Norrkoping, Sweden

In Sweden the limitations of the soybean as a farm crop are particularly narrow. This is true in regard to varieties, soils, the district where they can be grown, and usage.

Varieties

With the long days of Sweden soybeans of the short-day type do not flower and ripen in time for bean production. Even the earliest of the foreign varieties of soybeans are too late when grown in Sweden.

By crossing varieties of northern island origin (Hokkaido and Sachalin) with northern continental varieties (north Manchuria, North America and central Europe) we have produced some 1,900 hybrids.

One of these hybrid progenies, "Fiskeby III," is now being grown commercially on a small scale for human food.

Soil

On fertile soils where wheat, sugar beet and oil rape grow good yields, soybeans are excluded since the former crops make greater returns per acre. But there are in Sweden, as in other parts of northern Europe, large areas of light soils where such crops as wheat give poor yields. We grow soybeans on such light sandy soils in regions that suffer frequently from drought.

Under these conditions, which are often found in southeastern Sweden, soybeans can be grown in rotation with rye and potatoes and in competition with some other legumes such as brown beans (Norwegian beans.)

Growing District

Although we do most of our breeding work at Fiskeby, we have for safety placed some replica plots and most of our contract cultures of soybeans somewhat further south near the city of Kalmar between latitude 56° and 57°. We have to reckon with some risk of summer frost until late in June and then again from September on.

Yield

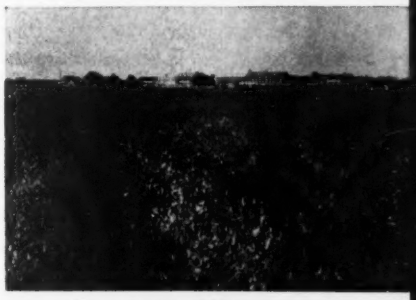
Field culture of the soybean in Sweden is still in an experimental stage. The majority of growers have had no previous experience and there are many crop failures as a result of thin stands or inadequate measures for weed control. We have no figures of average crop results. But at this time we consider a yield of 15 bushels an acre as normal and fairly satisfactory.

Under favorable growing conditions we have not infrequently recorded about 25 bushels an acre in field culture. In yield tests at Fiskeby the 4-year average (1946-1949) for the variety Fiskeby III is slightly above 26 bushels an acre.

Usage

The small quantities of soybeans harvested in Sweden beyond those required for seed are consumed as human food. For culture in Sweden we select only strains which in flavor, seed coat color, seed size and cookability answer the requirements for an edible soybean.

Jorgen Finergaard with some harvested soybean hybrid progenies. He has made a large number of such crosses at Fiskeby.



Ripe soybeans at Fiskeby

Golden Mix . . . Winner from the Start

BACK IN 1942 Chicagoans were intrigued by attractive and arresting advertising about a new wheat-soy flour for griddle cakes and waffles.

The copy appeared in newspapers, trade publications, and in striking color designs on billboards and whetted the appetite for a stack of yellow cakes or a crisp brown waffle dripping with syrup.

Golden Soy (later changed to Golden Mix) more than backed up all advertising claims with delightful taste and high quality and soon carved a permanent niche in the breakfast-food market.

Golden Mix is a blend of top-run wheat flour, soy flour and other ingredients.

This blend was developed by Dr. Charles Fearne who came to Chicago from England and who has been an incurable, uncompromising advocate of soy protein as a part of the public diet. He won considerable fame in his research on soy products, and was one of the first to develop methods of removing the bitter taste and replacing it with a pleasing palatable flavor.

Yellow cakes, dripping with syrup, baked from Golden Mix, a blend of top-run wheat flour and soy flour.

Through health stores in various states Dr. Fearne had sold a product somewhat similar to Golden Mix for a number of years.

His formula was purchased 8 years ago by the firm now known as Soy Food Mills, Inc., of Chicago, of which R. H. Thomas is president.

RICHARD H. THOMAS

The formula was used for making Golden Mix Pancake Flour. Dr. Fearne was retained as the company chemist.

At the outset the product was introduced in six primary American markets, including Chicago and New York. It received almost instant acceptance, particularly in the Chicago area where it was backed by a sizeable and well thought out advertising campaign. The percentage of soy flour to be used in the formula was determined only after long and minute experimentation. Results have proved that the combination was just right, judging from public acceptance and its continued and growing popularity.

The product has a lightness, a pleasing nut-like flavor, and a degree of digestibility rarely found in flour mixes. This seems to be the consensus of a great many able nutritionists.

At the present time Golden Mix has excellent distribution in the Middle West and in the northwest section of the country. Distribution is more limited in some of the east central states.

In the promotion of this product the company has followed a sound policy of pressing into new areas one by one only after the product has been thoroughly stabilized from an acceptance standpoint in other areas.

Golden Mix is one of the products which a mission from the Soya Food Research Council brought to the attention of food officials and nutritionists in a series of lectures and demonstrations throughout Western Germany in the Spring of 1950. Everywhere it received an enthusiastic stamp of approval.

In the September issue of the magazine Food Industries Theodore Soloski and Charles McWilliams of the Quartermaster office in Chicago stressed the popularity with the armed forces of breakfast cereals and suchlike dishes. If Golden Mix ever got a toehold in the armed services its future would be still brighter.

Third in a series of articles by the Soya Food Research Council.

CENTRAL SOYA LOWERS INSURANCE COST

Central Soya Co., Inc., Fort Wayne, Ind., processor, has put into effect a broad protection program that enabled the company to reduce from 500 to three the number of insurance policies covering its three modern soybean oil extraction plants.

Dollarwise, it has proved a sound investment, representing a saving of approximately $6,000 per month in insurance premiums, according to Central Soya officials.

The protection program is adaptable to most raw material processing in which inert gas may be used as a safety factor.

Inert Gas Equipment

With emphasis on inert gas generating equipment and sprinkler systems, fire walls and doors, ventilation and other safety measures, the Central Soya program has resulted in safer working conditions at the company's three processing plants for the production of soybean oil and by-products, as well as its "Master-Mix" livestock and poultry feeds. These soybean processing plants are located at Decatur, Ind., Marion, Ohio, and Gibson City, Ill.

The extraction process involves the use of large amounts of an inflammable hydrocarbon solvent (hexane) in the extraction towers. The process separates the flaked bean into liquid soya oil and solid phases. Subsequent steps remove the hexane from the oil and also from the spent flakes in driers, from which the solvent is condensed and recovered.

The protection program is based on recommendations of the 96-year-old Firemen's Mutual Insurance Co., one of the largest industrial underwriters which specializes in "superior risk" properties.

Coverage under the three insurance policies also provides for periodic variations in inventory, depending on raw materials, materials in process and finished inventory.

Central Soya installed a Roots-Connersville inert gas generator at each of the three plants. Costing approximately $5,000 plus installation, each generator is located in a building separate from the extraction tower itself. Inert oxygen-free gas produced by the generator is blown through the system as needed, both for shutdowns during purging operations and when the tower again is started up for the extraction function. Thus the hexane is introduced into an inert atmosphere.

Increase Production

Norman F. Kruse, vice president and technical director of Central Soya Co., commented: "Not only do these generators give us the additional protection required by the underwriters and desired by ourselves for our people, but they reduce to a considerable extent the down time when towers are purged, every 5 or 6 weeks, and thus add considerable productive time for the entire plant."

Henry B. Matthes, Firemen's Mutual engineer, observed that while this specific case applies only to the soybean processing industry, comparable problems exist in the extraction processing of other beans, nuts and vegetable products, and in the petroleum, mining and other industries. Hazards can be reduced to a great extent, Matthes said, by adequate protective measures, with resultant simplification of insurance handling, reduced premiums and more positive insurance protection.

N. F. Kruse, Central Soya Co. technical director and vice president (left), with Joe Nunnink, solvent plant superintendent, adjusts a valve on the carbon vapor absorption system in one of the Central Soya plants.

COPRA EXPORTS

Exports of copra and coconut oil, copra basis, during 1950 from the major producing areas of the world —the Philippines, Indonesia, Ceylon, and Malaya—may approach the 1949 volume of approximately 1.2 million long tons, according to information available to the Office of Foreign Agricultural Relations, U. S. Department of Agriculture.

Anticipated increases in Philippine and Malayan exports could offset expected decreases in shipments from Indonesia and Ceylon. Net exports from these four areas during the first half of 1950, of 463,900 tons, copra equivalent, were down 17 percent from the comparable period of 1949.

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Combination of pressing and solvent methods is used on cottonseed by Delta Products Co., Wilson, Ark.

FACTORS AFFECTING THE

Choice of a Soybean Processing Method

By WARREN H. GOSS
Pillsbury Mills Inc., Minneapolis, Minn.

If You Are a Soybean Processor Should You Change from the Screw Press to the Solvent Process? You'll Get More Oil . . . But Operating Costs May Be Higher.

TO PROVIDE a proper understanding of the methods used for processing soybeans, it is necessary first to outline briefly what methods are available for processing all oilseeds and then to consider each in the light of its advantages and disadvantages when applied to soybeans.

Hydraulic presses have been used for hundreds of years and are nearly obsolete so far as soybeans are concerned. Even before the introduction of this type of equipment, presses of one sort or another had been in use for thousands of years to obtain oil from seeds, and these utilized various means for applying pressure to the material being processed. In some primitive types, for example, a system of levers was used and, in later models, winches with chains or ropes were incorporated. Others, some of which are still operating, employed screws to apply the pressure.

Of the several types of hydraulic presses in current use, probably the most familiar in this country is the so-called "box" press, which is standard in the cottonseed industry. The plate press also is well known and has been used a great deal for processing linseed, although it has been largely replaced by screw presses. A third type is the cage press, which has been used to some extent in this country and on a very large scale in Europe for pressing such seeds as copra and palm kernels. In the United States, its chief application has been for processing castor beans.

The second of the common methods of obtaining oil from seeds is continuous pressing in a machine commonly known as a "screw" press, or Expeller. The first models of this kind of equipment appeared at about the beginning of the present century, and the American soybean industry has relied principally upon the screw press method until recent years.

The screw press method now is being replaced by a third process—solvent extraction—particularly in the American soybean industry. The method is hardly a hundred years old. The records are not entirely clear as to whether it originated in England or Germany. In the period preceding World War II, it was developed to its highest perfection in the latter country, and certain types of German equipment were imported into the United States during the middle 30's.

The soybean industry found solvent extraction to be so much more efficient than other processing methods that, during the past 10 years, there has been an enormous development of extraction equipment produced by American manufacturers. Although the combined capacity of all solvent extraction plants in the soybean industry a few years ago was small in comparison with that of plants using screw presses, the situation now is quite different. *Probably 60 percent of the soybeans being processed at the present time are being extracted with solvents, and the proportion being pressed is declining rapidly.*

Solvent Methods

The purpose of the present discussion is to consider in some detail several aspects of the solvent extraction method of processing soybeans, particularly continuous extraction, batch extraction, and the use of trichloroethylene as a solvent. Still another way of processing which should be commented upon is a combination of pressing and extraction, although most soybean mills are located where the choice of equipment involves simply the selection of either some type of press or of solvent extraction.

So far as soybeans are concerned, there is no difficulty in choosing between hydraulic presses and screw presses, for the former are practically obsolete. They require far too much hand labor and they are not as efficient at removing oil as are screw presses. About the only places where hydraulic presses are used on soybeans in the United States now are in the South where a few cottonseed mills handle a relatively small amount of soybeans each season.

The most important question with regard to equipment now facing most operators in the soybean industry is whether to replace existing screw presses with solvent extraction facilities. The chief advantage of the latter method, of course, is that it permits recovery of about 2 pounds more oil per bushel of soybeans than do pressing methods. Since the price of oil is, and always has been, considerably more than that of the meal, the additional return from the sales of oil and meal in the case of solvent extraction ordinarily more than offsets the slight-

ly higher operating cost as compared with the cost of running screw presses.

Solvent extraction possesses other advantages, too, though of less importance. A well operated solvent extraction plant produces oil of better quality than is generally obtained from Expellers and screw presses. Most refiners have discovered that the best crude soybean oil obtainable comes from extraction plants, although the trade generally makes little price distinction between expelled and solvent-extracted oils.

Meal Quality

Quality of the meal deserves very serious consideration when processing equipment is being selected. The meal resulting from pressing operations generally is of high quality because the heat developed in the process performs an efficient job of toasting and renders the protein quite nutritious. It is possible, however, to burn the meal and destroy some of its value by over-heating and attempting to increase the oil yield beyond the limitations of the screw press method. It is sometimes a temptation, therefore, to operate continuous presses at the highest temperatures and pressures commensurate with the production of good meal and even to sacrifice meal quality somewhat in order to obtain a little more oil.

In the solvent extraction process, very little heat is required in order to prepare the beans and extract out the oil by means of a volatile solvent. Heat must be applied, however, to remove residual solvent from the meal, and still further application of heat and moisture is necessary in order to develop optimum nutritional value of the protein. In all properly designed extraction plants used in the soybean industry, therefore, a toaster or cooker is employed for finishing the meal to exactly the specifications desired.

Since the toasting operation has nothing whatsoever to do with the amount of oil recovered during the extraction step, the extraction process is much more flexible than the pressing method with respect to the tailor-making of meal for use in livestock feeds. There is no temptation to sacrifice meal quality in order to increase oil yields or effect operating economies.

There are also several disadvantages of solvent processing as compared with the screw press method. In the first place, the installation costs a great deal more originally. The fixed operating charges consequently are somewhat higher than in press plants. This is particularly true, of course, in new solvent installations whose investment has not been amortized. On the other hand many of the screw press plants are so old that their book values have depreciated to almost nothing.

Probably the biggest disadvantage of solvent extraction is that the process and equipment are complicated, and the operation is hazardous if not conducted properly. There is nothing simple about an extraction plant. It requires a great deal of technical supervision and a staff of trained operators and technicians in order to maintain efficiency. Above all, constant vigilance is necessary against loss of solvent, fires and explosions. The naphtha commonly used as a solvent is extremely flammable and dangerous if it escapes, as attested by a number of fires and explosions, some of them disastrous, which have occurred in the soybean industry.

The complexity of solvent extraction plants and the consequent need for technical supervision have usually made it impractical to consider the process for small-scale application. Most solvent extraction is conducted in plants having a capacity of 100 tons or more per day, but some exceptions will be considered later in this discussion.

The question of oil yield has provoked much argument by soybean processors seeking comparisons between the extraction and pressing methods. The statement is frequently heard, especially when oil prices are declining, that it will be more economical to operate a press plant than an extraction plant if the oil price drops any further. Such claims should be analyzed carefully. If oil and meal sold for the same price per pound, and the costs of operating the two types of plants were the same, there obviously would be no particular financial advantage in operating one process or the other.

Cost Difference

Since oil ordinarily does sell at a higher price than meal, and since solvent extractors usually do cost more to operate than do presses, the monetary advantage of running a solvent plant consists approximately of the difference in price between oil and meal, multiplied by the additional yield of oil in the extraction process, corrected for whatever difference there is in the operating costs of the two processes. In recent months, for example, the prices of meal and oil have been about 3c and 10c per pound, respectively. The extraction process, yielding about 2 pounds more oil and 2 pounds less meal per bushel, should return approximately 2 x 7c—14 cents per bushel more than the screw press method. This figure, of course, should be corrected to allow for the difference in operating costs. If a particular operator should find that his solvent plant costs 5c per bushel more to run than the Expeller mill, then the advantage of processing by solvent extraction would be roughly 9c per bushel. These figures are only approximate because a certain additional allowance is necessary for the moisture content of the meal, but such correction is small in most cases.

This method of comparing costs, although possibly an over-simplification, furnishes an approximate answer to the question of whether it ever becomes more economic to operate a screw press plant than solvent extraction equipment. If it is assumed that the extraction process yields 2 pounds more of oil per bushel, the break-even point will occur when the difference between the prices per pound of oil and meal becomes approximately one-half the difference between the operating cost per bushel for the two processes. If the extraction process should cost 5c per bushel more to operate, as assumed above, then the price of oil would have to fall within 2½c per pound of the price of meal be-

The author at soybean conference at Peoria where this paper was given.

—Soybean Digest photo by Pellett

fore it would become more profitable to operate screw presses than solvent extraction apparatus.

The difference between operating costs for the two processes varies within extremely wide limits, of course, and no truly typical figures could possibly be cited. Only a thorough cost analysis for each specific case would permit an accurate comparison between the two. Since it is generally true that small extraction plants cost more per bushel to operate than do large ones, however, the point should be studied carefully by anyone contemplating the installation of small extraction equipment.

The advent of solvent extraction as a predominating method of processing in the soybean industry has brought about a change in the price relation between soybeans and their end products, namely, oil and meal.

It is relatively easy to determine from market reports for any given location the difference between the price of a bushel of soybeans and the price of the oil and meal obtained therefrom by a processor. Most operators are quite adept at figuring in their heads how much processing margin exists for any given market condition by simply subtracting the price of a bushel of soybeans from the corresponding price of 11 pounds of oil and 47 pounds of meal, which yields might be considered typical for the extraction process.

It is desirable, of course, to negotiate purchases and sales during periods when the operating margin is at a maximum, but the operating margins that have existed during the current year have proved unfavorable most of the time. Among the several reasons for this situation should be mentioned the fact that competition between processors now is predominantly on the basis of profit, if any, available in the solvent extraction process, whereas the competition throughout the previous history of the soybean industry was based largely on processing margins obtainable through screw press operation. In other words, the combined capacity of solvent extraction equipment now is so large in relation to the supply of soybeans available for processing that the screw press operator appears no longer to be a serious competitive factor in determining prices.

After its conquest in the soybean industry, the solvent method is invading new fields, especially cottonseed and linseed processing, but its application there involves some problems not encountered in soybean mills. Principal of these is the fact that seeds other than soybeans are much higher in oil content and are much more difficult to handle in the type of extraction equipment best suited to soybeans.

Forepressing

Several operators have found that a more practical method in the case of these high-oil seeds is to use presses for removing that portion of the oil which is easy to separate and then to extract the remainder with solvents. Unless the raw material contains 25 percent to 30 percent or more of oil, however, it usually is found more practical to extract all the oil in one operation without forepressing.

There are several good reasons for considering forepressing in the case of high-oil seeds, one of which is the minimizing of troubles often encountered because of dust and fines when such seeds are processed by solvent extraction without forepressing. Removal of the oil from most of the high-oil seeds leaves behind a residue which is extremely porous, fluffy, and friable, and it is not surprising that such material readily disintegrates. The resulting dust and fine particles cause tremendous difficulty in many parts of the extractor and auxiliary equipment. Preliminary removal of a large proportion of oil from these seeds, however, yields a cake, which, when further extracted for complete removal of remaining oil, is far less porous and fluffy, and it is more dense and does not disintegrate so easily.

The combination of forepressing and extraction in many cases costs less to install and operate on seeds other than soybeans, and it provides a much more flexible installation permitting the handling of almost any type of raw material. It is standard practice in Europe and now is used in the United States on such materials as castor beans, linseed, corn germ, and to a small extent on cottonseed.

An extraction plant located on the fringe of the soybean area, particularly on the northern or southern edge of the region, might well be designed with the thought of handling more than one type of seed during each season. When processing soybeans, only the extraction part of the plant would be operated, but the combination of forepressing and then solvent-extracting the residue should prove practical for that part of the season's crush devoted to linseed, cottonseed, or other high-oil materials.

There is another type of solvent extraction used widely abroad on soybeans, as well as on other seeds, but which is little known in this country. It is commonly referred to as "batch" extraction, but the specific type deserving attention here is that which employs a battery of about 10 extractors arranged for multiple-contact, counter-current, batch extraction. It was developed to a rather high state of perfection in Germany, but American processors have taken it more or less for granted that such a system would

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prove more expensive to operate in this country than the continuous extractors. This may not be true, however, and the battery type of batch extractor possesses several advantages. It is said to be less expensive to build—at least in Europe where fabricators have had long experience with this type of equipment. The loss of solvent also is said to be lower.

These plants are more flexible than the continuous extractors and, consequently, are more easily adapted to the processing of several kinds of seeds than are the continuous installations, but this factor would be of no importance to most soybean processors. The batch extractors are considerably more simple in construction and have fewer moving parts than do the continuous ones, so there is less danger of mechanical failure and interruption in operation.

It has been commonly assumed by many that the battery type of batch extractors requires more labor than does a continuous extractor of equal capacity. This apparently is not correct, however, for European practice is to employ the same amount of labor and supervisory personnel for the two processes, which practice, incidentally, is about the same as that followed in the United States in the case of continuous extraction.

It is difficult to explain fully why the American soybean industry has adopted only continuous extraction, but perhaps the most important reason is that no one ever made a serious attempt to sell a well-designed battery extraction system to American soybean processors. There probably are other reasons which deserve further study. It is not intended here to recommend this system over any of the types of extractors now being manufactured here. It is significant to observe, nevertheless, that several European operators whose continuous extractors were destroyed during the war now are rebuilding with the batch tvpe of extractor because of the advantages offered by that method.

Trichloroethylene Plants

No discussion of soybean processing would be complete without reference to the use of trichloroethylene. A brief history of this development might assist in an appraisal of its present status. My personal understanding is that the trichloroethylene processes now being offered for sale owe their origin to a couple of disastrous explosions in soybean extraction plants during 1934, one in Chicago and one at Momence, Ill. These attracted great publicity and stimulated many people to thinking about non-flammable solvents. One of the large producers of chlorinated hydrocarbons reportedly financed a research project at the Engineering Experiment Station of Iowa State College in order to determine which of the non-flammable solvents offered the most promise for commercial use. The answer appeared to be trichloroethylene.

Since then, research and development have been continuing in the Iowa State Engineering Experiment Station, and several interesting applications of the work have appeared. One of these is the Detrex extractor. This resulted from developmental work conducted by the Detrex Corp. as a consequence of the early research at Iowa State College. This equipment has been installed and operated at several locations.

Other extractors were built at Hiawatha, Kans., and Plainfield, Iowa, and embodied certain of the principles developed in the Iowa State program. More recently, the manufacture of small extractors, based on the Iowa State design, has been undertaken by the Crown Iron Works in Minneapolis.

The principal idea behind the trichloroethylene extraction development is to provide a safe extractor so that it can be built in small sizes for operation by relatively untrained personnel. The advantages and disadvantages of small-scale operation are well known in the soybean industry.

By doing business locally, that is, buying soybeans grown nearby and selling the meal to feeders in the immediate vicinity, it is possible for a processor to save a great deal on both inbound and outbound freight and to realize an appreciable advantage over competitors who operate on such a large scale that they must procure soybeans and dispose of the meal at points considerably distant from the plant.

Installation and operating costs per unit of capacity, on the other hand, are comparatively high for small extractors. Striking the proper economic balance between these two offsetting factors is the major consideration required in the evaluation of a small extraction plant for any particular location.

So far as trichloroethylene itself is concerned, its big advantage is its non-flammability, and its use eliminates the expensive precautions required with respect to both installation and operating in mills where naphtha is used as a solvent. Trichloroethylene is much more expensive than naphtha, on the other hand. Great precautions must be exercised at all times to prevent its loss, either through accidental spills or leaks or through incomplete recovery from the oil and meal.

Other precautions must be observed, too, such as to avoid breathing excessive quantities of the vapors. Efficient solvent recovery is neces-

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sary, also, because an excessive amount of residual trichloroethylene in the oil can cause difficulty in the hydrogenation process to which the oil later is subjected by the purchaser. Trichloroethylene also must be stabilized to prevent corrosion of the extractor and related equipment.

It has been amply demonstrated that trichloroethylene can be used very satisfactorily as a solvent for soybean oil, and there are no insurmountable technical obstacles to such use. A very large extraction plant in England used it throughout the war to minimize the danger of fire during bombing attacks, and its use there has been continued subsequently. The choice between naphtha and trichloroethylene as a solvent is entirely one of economics involving principally a comparison between certain advantages of small-scale operation afforded by the non-hazardous character of trichloroethylene and the higher operating costs likely to result from its use. As pointed out previously, it probably would be uneconomic to operate any solvent plant if the excess in processing costs per bushel as compared with those for Expeller operation exceeds approximately half the difference in the price per pound for oil and meal.

The preceding points are not by any means a complete treatment of the problems faced by a processor attempting to choose the proper type of equipment, but they are the more important ones. Each question must be considered from a dollars-and-cents standpoint when evaluated in the light of local conditions existing in the proposed location. It is necessary also to look into the future as far as existing data permit and to predict as well as possible how technical and economic changes may affect the operations in years to come.

1950 CROP ESTIMATE NOW 281 MILLION

The U. S. soybean crop for 1950 is now estimated at 281 million bushels according to the Nov. 1 report of the U. S. Department of Agriculture crop reporting board.

This is an increase of 2 percent over the October 1 forecast and about 27 percent above last year's near record crop. The 1939-48 average production is only 164.5 million bushels.

Production prospects increased over Oct. 1 due primarily to the excellent weather for maturing the late beans and to the unusually good harvesting conditions. By Nov. 1 only a small fraction of the crop remained to be harvested. The unseasonably warm weather in October not only was favorable for combining but also helped to lower the moisture content, which was high in the early harvested beans.

In the heavy producing North Central area, all the major states either held the same production or showed improvement over a month earlier. Yields per acre, in most states, are running less than last year but production is much higher because of increased acreage.

Canadian soybean acreage in 1950 again reached a new record, reports the Office of Foreign Agricultural Relations of the U. S. Department of Agriculture. There were 142,000 acres planted in 1950 compared with 103,800 acres in 1949, an increase of 36 percent. This compares with an average of 9,714 acres during 1935-39 and 47,600 acres during 1943-47.

Despite much lower yields, the increase in acreage is expected to result in a soybean harvest of approximately 3,096,000 bushels compared to 2,605,000 in 1949.

All the current Canadian soybean production is confined to the province of Ontario, and new varieties have permitted the extension of acreage over wider areas within the region. These new varieties are characterized by early maturity and are adaptable to central and eastern Ontario in addition to the primary area in the southwestern part of the province. It is estimated that over 70 percent of the soybean acreage is planted to new Canadian varieties. In addition to new varieties, the widespread growing of soybeans has

SOYBEANS FOR BEANS

State	Yield per acre			Production		
	Average 1939-48	1949	Preliminary 1950	Average 1939-48	1949	Preliminary 1950
	— Bushels —			— Thousand Bushels —		
Ohio	19.3	24.0	22.5	17,547	20,592	23,895
Ind.	18.4	23.0	22.0	22,958	33,166	36,960
Ill.	21.2	26.0	24.5	64,513	82,602	94,692
Mich.	16.4	22.0	20.5	1,525	1,452	2,234
Wis.	14.2	16.5	14.0	490	248	280
Minn.	15.4	17.5	15.5	5,995	12,408	16,461
Iowa	19.6	22.5	22.0	28,766	28,778	39,996
Mo.	15.0	21.0	22.5	8,046	17,997	25,560
Kans.	11.1	14.5	18.0	1,715	3,436	5,616
Va.	14.8	18.0	19.0	1,128	2,106	2,584
N. C.	12.0	15.0	15.0	2,675	3,960	4,290
Ky.	15.2	18.5	18.0	1,102	2,202	2,358
Tenn.	13.5	19.0	21.0	642	1,140	1,890
Miss.	12.8	15.5	22.0	1,212	1,674	6,446
Ark.	14.6	20.0	21.5	2,980	5,820	10,750
Other States	12.8	15.1	16.3	3,198	4,724	7,121
United States	18.8	22.4	21.7	164,491	222,305	281,133

USDA crop report Nov. 1.

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"Serving Industry since 1895"

Canada: Oilseed acreage, yield, and production by Provinces, 1949 and 1950*

Province	Area		Yield per acre		Production	
	1949	1950	1949	1950	1949	1950
	1,000 acres		Bushels		1,000 bushels	
			Flaxseed			
Ontario	16.5	19.8	11.9	13.0	196	257
Manitoba	134.0	300.0	8.2	10.0	1,100	3,000
Saskatchewan	132.9	177.0	4.9	6.8	650	1,200
Alberta	37.5	48.3	8.0	9.0	300	435
British Columbia	2.5	1.9	15.0	10.0	38	19
Canada	322.5	547.0	7.1	9.0	2,284	4,911
			Soybeans			
Ontario	103.8	142.0	25.1	21.8	2,605	3,096
	1,000 acres		Pounds		Short tons	
			Sunflower seed			
Manitoba	60.0	23.0	450.0	450.0	13,500	5,175
			Rapeseed			
Saskatchewan	20.0	1.4	850.0	300.0	8,500	210

*Preliminary. Unofficial estimates for sunflower seed and rapeseed.

been stimulated by better prices, an increased market, and more general use of combines.

The current marketing situation and outlook for Canadian soybeans continue to be good. With the margarine industry operating at an even higher rate than last year (when 37,000 tons of margarine were produced), there is a ready market for all domestic soybean production. In 1949, Canadian soybean production was still less than half of total requirements (5.5 million bushels in 1949-50), and with increased demand for edible oils, this year's record crop will still fall short of meeting domestic needs. Soybean imports during the 1949-50 crop year were about 2,800,000 bushels and are expected to be even larger this year. Soybean oil imports amounted to 4,800 short tons.

Soybean prices in Canada follow the U. S. market very closely. The price paid by crushers will be the U. S. price as modified by freight and currency differentials. This is, of course, due to the important role that U. S. soybeans and soybean oil play in the Canadian market and the availability of supplies in the United States.

MISSOURI OPEN HOUSE

—Photo by Paul C. Hughes

These pleasant people are Mr. and Mrs. J. W. Calland, Decatur, Ind., and John Brown, manager of the new Cypress Supply Co. at Portageville, Mo., on the firm's opening day recently. Part of the warehouse and soybean storage tanks are in the background. The ubiquitous Mr. Calland is director of the National Crop Improvement Council of the processor association.

SOYBEANS
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Write for technical data sheet.

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NAUGATUCK, CONNECTICUT

US AGRICULTURAL CHEMICALS

PUBLICATIONS

Soy-Fed Steers Gain More in Oklahoma

The native grasses of Oklahoma provide excellent grazing in summer, and when cured on the stem they provide a satisfactory roughage in winter. The value of supplementing such forage with feeds rich in protein and phosphorus has long been recognized. Cottonseed cake, the supplement most widely used in Oklahoma, is rich in both nutrients.

In recent years soybean oil meal has appeared as a competitor of cottonseed meal; and still more recently there have been feeding tests with urea in maintenance rations for steers. The Oklahoma Experiment Station has undertaken experiments in the feeding of these supplements that are new to the region. The results:

A soybean cake ration supplemented with bone meal when fed to 2- and 3-year-old steers grazing dry bluestem grasses produced more winter gain than a soybean cake ration unsupplemented, in each of four trials.

Two- and 3-year-old steers grazing dry bluestem grasses supplemented with soybean cake and allowed free access to a mineral mixture of equal parts salt, bone meal and ground limestone, made greater winter gains than steers fed soybean cake but not allowed access to any additional mineral.

It appears that the feeding of a phosphorus-rich mineral supplement such as bone meal to steers fed soybean cake on dry grass will increase gain and total return per steer.

Two- and 3-year-old steers wintered on bluestem grasses and fed soy protein made significantly greater gains than steers fed cottonseed protein. Although it has been reported that amino acid composition of protein is not important in rations for ruminants, the results obtained in these trials suggest the necessity of further study of the subject, particularly when cattle are receiving a near maintenance ration and are subjected to all the rigors of an Oklahoma winter without shelter.

FEEDING TRIALS WITH MINERAL AND PROTEIN SUPPLEMENTS FOR TWO- AND THREE-YEAR-OLD STEERS WINTERING ON DRY GRASS. By O. B. Ross, R. W. MacVicar and D. F. Stephens. Bulletin No. B-359. Oct. 1950. Oklahoma Agricultural Experiment Station, Stillwater, Okla.

Storage Costs

Three of the principal cash costs incurred in storing soybeans are discussed in a report by Production and Marketing Administration. These costs are interest for the use of credit, insurance against risk and taxes.

There are three principal sources of loans made specifically on soybeans in storage. They are commercial banks, production credit associations and the Commodity Credit Corporation. The organization and operating procedure of each of the three credit agencies vary considerably.

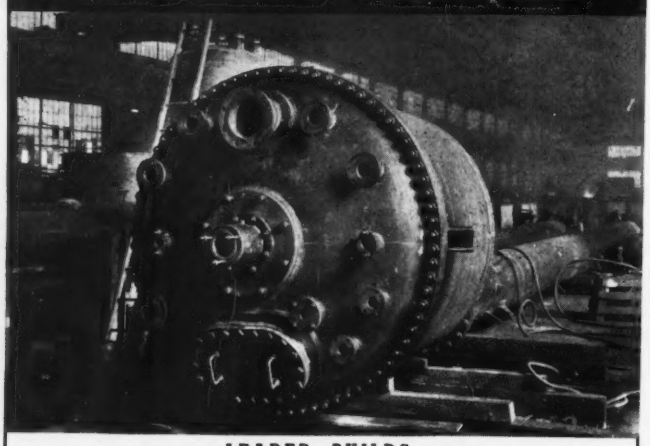
Careful consideration of the following factors will aid the soybean producer in choosing the most practical and efficient loan for his storage operation: *need, terms of the loan, marketing schedule, liability of borrower, insurance requirements, cost of credit, convenience, personal relations and dependability of loan source.*

It has been found that the cost of a loan on soybeans stored on the farm (term 6 months, on soybeans with a market value of $2.11 a bushel) varies from 4.2 to 9.1 cents per bushel. The principal factors causing variations in the cost of a loan are the source and size of the loan.

Cost of insurance varies, of course, with its coverage and conditions. Whether a soybean grower decides to insure as heavily as permissible or carry all the risk himself, he will gain by taking common-sense precautions to protect the stored crops against physical loss from these causes. Combined insurance coverage (against loss or damage from both fire and windstorm) for 75 percent of value on $2 soybeans stored in a designated building costs only ½ to ¾ cent per bushel for a 6-month storage period.

Tax cost per bushel is dependent on the assessed value of the soybeans and the tax rate. Assessed value will necessarily vary with market price and assessment practice. Since soybean prices differ between states and fluctuate during the marketing

PROCESS VESSELS



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year, and since the assessment date varies among states, the market price on the assessment date shows considerable variation.

In 11 of the 21 principal soybean producing states, property taxes are not levied against farm-stored soybeans. Among the other 10 states, average property tax rate (percent of assessed value) during the 1947-48 crop year was estimated to range from 0.25 percent to 3.8 percent. Assessed value ranged from 10 percent to 100 percent of market value; average market value on assessment date, from $3 to $3.95 per bushel. Average property tax cost was estimated to range from 0.9 to 11.6 cents per bushel.

Each of the three major cash costs can be avoided to some extent. A farmer may be able to avoid borrowing entirely or in part. He may be able to obtain a more favorable insurance rate by improving the physical fire protection. He may reduce his risk to a point where he feels able to carry it without insurance. Taxes on a stored crop can be avoided in any tax jurisdiction by selling before assessment date.

PMA plans to report on additional parts of the study on farm storage of soybeans as they are completed. The other parts now in process deal with the economic effects of changes in quality during storage and with types and costs of farm-storage structures and equipment.

CASH COSTS OF FARM STORAGE IN MARKETING SOYBEANS. By Donald B. Agnew and Clifford H. Keirstead, fats and oils branch, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25, D. C.

Miscellaneous

FLAVOR REVERSION IN SOYBEAN OIL. V. ISOLATION AND IDENTIFICATION OF REVERSION COMPOUNDS IN HYDROGENATED SOYBEAN OIL. By A. I. Schepartz and B. F. Daubert, department of chemistry, University of Pittsburgh, Pittsburgh, Pa. Journal of the American Oil Chemists' Society. Vol. 27, No. 10. Oct. 1950.

FLAVOR REVERSION IN SOYBEAN OIL. VI. ISOLATION AND IDENTIFICATION OF REVERSION COMPOUNDS IN UNHARDENED SOYBEAN OIL. By R. J. Stapf and B. F. Daubert, department of chemistry, University of Pittsburgh, Pittsburgh, Pa. Journal of the American Oil Chemists' Society. Vol. 27, No. 10. Oct. 1950.

VAPOR PRESSURE OF HEXANE-SOYBEAN OIL SOLUTIONS AT LOW SOLVENT CONCENTRATIONS. By Allen S. Smith and Franklin J. Wechter, University of Notre Dame, Notre Dame, Ind. Journal of the American Oil Chemists' Society, Chicago 1, Ill. Vol. 27, No. 10. Oct. 1950.

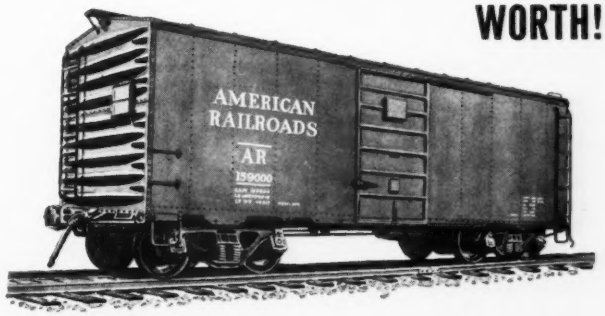
COMPARATIVE COMPOSITION OF SOYBEAN AND CORN PHOSPHATIDES. By C. R. Schofield, T. A. McGuire and Herbert J. Dutton, Northern Regional Research Laboratory, Peoria, Ill. Journal of the American Oil Chemists' Society, Chicago 1, Ill. Sept. 1950.

REPORT ON SOYBEAN FLOUR. By W. L. Taylor, General Mills, Inc., Minneapolis, Minn. Associate referee. Association of Official Agricultural Chemists Journal. Vol. 33, No. 2. May 15, 1950.

APF SUPPLEMENTS IN MILK REPLACEMENTS FOR DAIRY CALVES. By J. B. Williams and C. B. Knodt, Pennsylvania Agricultural Experiment Station. Journal of Dairy Science. Vol. 33. June 1950.

SESAME. POTENTIALITIES OF AN ANCIENT OIL SEED CROP UNDER MODERN CONDITIONS. By A. E. Haarer. World Crops. May 1950.

ANOTHER $500,000,000 WORTH!



A far-reaching program for rail transportation—designed to meet the rising needs of commerce and the demands of national defense—was adopted by the member lines of the Association of American Railroads at a recent meeting in Chicago.

As part of that program, the railroads have placed, or are in the process of placing, orders for more than $500,000,000 worth of new freight cars. This brings the total spent on improvements in railroad plant and equipment since World War II to more than 5 billion dollars.

In the past ten years, the railroads have built and bought 600,000 new, bigger and better freight cars, 11,000 new Diesel units, and 1,700 new and improved steam locomotives, besides making great improvements in tracks, terminals, signals, shops, and every part of the railroad plant.

In addition, railroads are speeding up the return of freight cars awaiting repair, and—with the cooperation of shippers and government agencies—are securing the maximum utilization of all available cars.

The program of the railroads is an essential part of any increase in national production—*for neither in commerce nor in defense can America produce and use more of anything than can be hauled.* There is no way in which the nation's effective hauling capacity can be expanded so quickly and with such small demands upon man power and materials, as by adding to the serviceable freight car fleet.

In meeting transportation demands in World War II, the railroads enjoyed splendid cooperation from users of transportation, and the helpful assistance of an outstanding government agency, the Office of Defense Transportation. With this sort of cooperation and with an opportunity to secure necessary man power and materials, the railroads will reach the goal to which they are pledged—adequate transportation for all America, in peace and in war.

Association of American Railroads
WASHINGTON 6, D. C

BOOKS

Survey on Solvent Process

The solvent process has begun to invade the South. Buckeye Cotton Oil Co. is building a cottonseed plant using solvent extraction at Atlanta, and it is believed that the process will be used to an increasing extent on soybeans and peanuts in the Deep South.

Recognizing the trend, the Georgia State Engineering Experiment Station has published a survey on the solvent extraction of oilseeds. The survey covers the capabilities and limitations of the process including its economic aspects.

Attention is directed to cottonseed and peanuts and their competitors including soybeans.

There is an extended discussion of the various methods of solvent extraction and the extractors on the market in the United States.

The author concludes:

1—The solvent extraction process will ultimately be utilized on a large-scale commercial basis on virtually all of those oilseeds which are grown in sufficient volume to warrant the adoption of this process.

2—Solvent extraction systems will become more versatile, thus making it possible to process two or more different oilseeds on the same equipment, or to operate at reduced capacity during portions of the year.

3—Small-scale extractors will become more numerous.

4—Existing equipment and equipment yet to be developed will be refined, with the result that processing costs will be reduced.

5—For seeds which are of high oil content, forepressing may be used more extensively if completely satisfactory one-step processes are not developed.

6—Increased uses will be developed for those products and byproducts peculiar to solvent extraction. Of these, protein obtained from undenatured meal is probably the most promising.

THE SOLVENT EXTRACTION OF OILSEED, AN INFORMATIONAL SURVEY. By E. P. Cofield, Jr. Circular No. 28. 103 pages. Price $1.50. Georgia Institute of Technology, State Engineering Experiment Station, Atlanta, Ga.

Crown Soya Queen at Mexico, Mo.

In a colorful pageant at Mexico, Mo., Miss Josephine DiBlasi, the city's first soybean queen, receives the keys of three southern cities she was to visit as a prize. The cities were Mobile, Ala., Biloxi, Miss., and New Orleans, La. Flanking the queen are "soybean fairies". Watching the ceremonies were about 1,000 Audrain County people. Miss DiBlasi won by vote from a field of 19 candidates. Afternoon's festivities included an educational roundtable, displays and free acts, and tour of local industries. The Nov. 16 event was sponsored by the Mexico Chamber of Commerce.

Book on Melting of Fats

In no other class of organic materials are the processes of melting and solidification as significant as in fats, or in the fatty acids and their derivatives, the glycerides.

The well known author in the fats and oils field, Alton E. Bailey, has written a book on the subject; and attempted to collect from widely scattered sources all the available material as well as to correlate and interpret it.

The book was written primarily for the practicing oil and fat chemist or technologist. But a brief introduction to relevant physical chemical principles is included for the benefit of readers whose interests lie mainly in other fields.

MELTING AND SOLIDIFICATION OF FATS AND FATTY ACIDS. By Alton E. Bailey, votator division, the Girdler Corp., Louisville, Ky. 356 pages. Price $7. Order through Soybean Digest, Hudson, Iowa.

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GRITS and FLAKES... FROM THE WORLD OF SOY

"Success Story," an article about the soybean crop and industry, appeared in the Oct. 1950 issue of Bemistory, publication for employees of Bemis Bro. Bag Co.

* * * *

The story of the development of the soybean is told in an informational kit being distributed to science teachers and students by Science Service. A. E. Staley Manufacturing Co., Decatur, Ill., supplied the materials and much of the information.

* * * *

Burrows Equipment Co. held a recent sales conference at the home office, 1316 Sherman Ave., Evanston, Ill., for formulation of winter sales promotion plans.

* * * *

Harold F. Ohlendorf, Osceola, Ark., president of Mississippi County Farm Bureau, has been named 1950 "Citizen of the Year" by the Osceola Chamber of Commerce.

* * * *

The Kansas City, Kans., plant of Kansas Soya Products Co., was reopened Nov. 8 for the first time since Dec. 1949, Elmer Buster, general manager, has announced. Buying and selling headquarters are located in Emporia.

* * * *

E. Lee Talman has been elected administrative vice president and a director of Lever Brothers Co. He comes to Lever from Coco-Cola Co. and assumes his new duties Jan. 1.

* * * *

Dannen Mills, Inc., St. Joseph, Mo., announces a $500,000 expansion program that involves installation of a Rotocel extraction unit. Firm's solvent extraction capacity, now 90 tons daily, will be more than doubled.

* * * *

Glidden Co.'s Durkee Famous Food division is making a 2-month advertising test of its "cone-boul" baking shortening in Midwest newspapers.

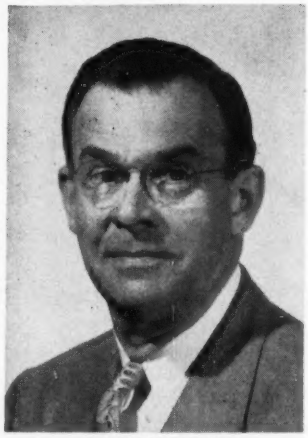
* * * *

A new agricultural chemicals plant for the South is under construction at Montgomery, Ala., by Pennsylvania Salt Manufacturing Co. Chemicals for use on Southern crops including soybeans will be produced.

* * * *

J. Don Parel, Arlington, Va., has been named manager of agricultural relations in the public relations department of the Association of American Railroads. Previously, he was associate director of the Washington office of the American Farm Bureau Federation.

JOINS PURINA



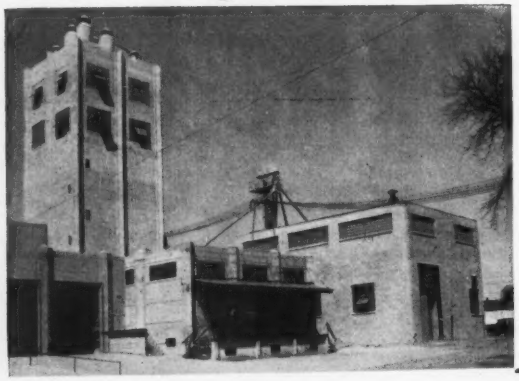
ROLAND M. BETHKE

Donald Danforth, president of Ralston Purina Co., announces that effective Jan. 1, Dr. Roland M. Bethke, assistant director of the Ohio Agricultural Experiment Station, will become vice president in charge of research and product control of Ralston Purina Co.

In 1923 Dr. Bethke became associated with the Ohio Agricultural Experiment Station at Wooster, Ohio, in charge of nutritional investigations in animal industry. In 1946 he was made assistant director and later chairman of the department of animal science at the Ohio Station.

NOW IN ACTUAL OPERATION IN GLENCOE, MINN.

New Soybean Oil Extraction Plant



CROWN SAFE SOLVENT PROCESS PRODUCING HIGH QUALITY MEAL

In this building at Glencoe is the Crown safe solvent oil extraction plant recently purchased by the Farmer's and Merchant's Milling Co. This plant is producing an extremely high quality toasted meal and a high quality prime oil. Solvent used is non-explosive, non-inflammable Trichlorethylene.

Write today for further information including flow sheet and operating data.

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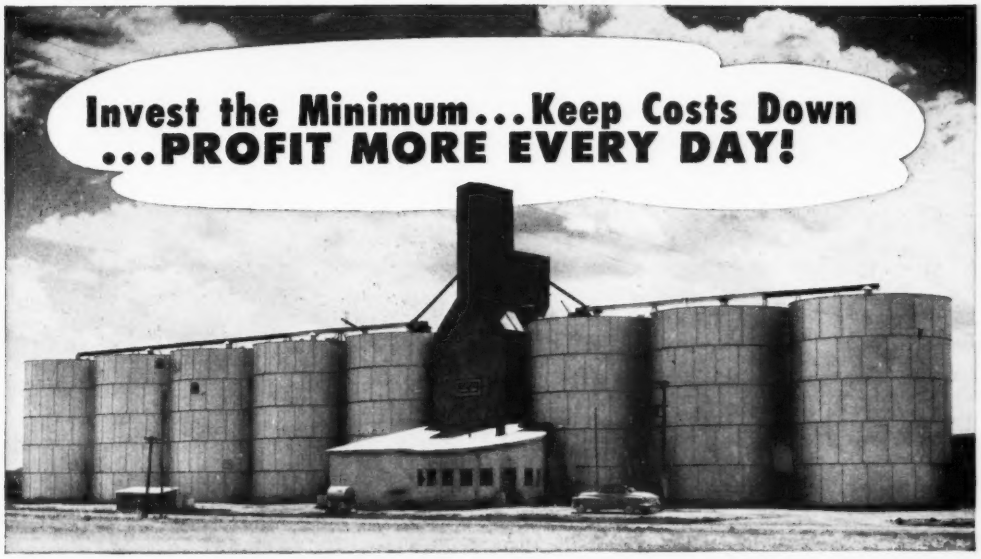

★ **Another Example**—The above photograph of a battery of Columbian Bolted Steel Grain Storage Tanks at Sidney, Nebraska, is another example of how extensively these tanks are being used for economical, safe storage of all kinds of grain and seed.

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Your Profits Will Climb, too, when you start keeping overhead and maintenance down with Columbian Tanks. And remember, an added money-saving feature of these tanks is **LOW COST ERECTION** due to their bolted sectional construction.

COLUMBIAN Storage Tanks are **FIRE-PROOF . . . WEATHER-PROOF . . . RODENT-PROOF.** They never crack or crumble . . . no caulking or patching is required. Actual service tests as long as 30 years prove them ideal for safe, efficient storage and handling of all small grains—wheat, corn, oats, barley, soya beans, flax, cotton seeds, peanuts, rice, coffee beans, etc. Hundreds are now in use by all kinds of feed processors.

Last years on end—none have ever worn out—not one has been demolished by tornado or cyclone. After over a quarter of a century of manufacturing **COLUMBIAN** Bolted Steel Tanks, they continue to prove superior because of Columbian's exclusive and important details of design. Even after 30 years of service users have rings to increase storage capacity.

Easy Ways to Erect — Detailed easy-to-understand blue prints for erection are furnished so that tanks may be put up with any kind of labor—or we will provide supervisor for your own men—or a complete Columbian crew. Foundation specifications and blue prints are furnished to enable your local concrete contractor to build foundation.

Free Engineering Service— All preliminary engineering service for designing tanks to meet your particular need and arrangement is provided free. **WRITE NOW** for free literature.

Columbian Steel Tank Co. P.O. Box B-4226 Kansas City, Mo.

Associate Member of the Grain and Feed Dealers National Association

Cecil H. Vining, Richmond, Kan., was given the W. G. Skelly Agricultural Achievement Award recently for good conservation practices on his corn, wheat, soybean and pasture acreages. He farms 200 acres.

* * * *

Glidden Co. has bought the entire plant and property of Climax Industries, Inc., in Cleveland, Ohio, for additional facilities for the firm's paint and varnish division.

* * * *

Arthur C. Smith has been appointed administrative assistant to Edward M. O'Connor, vice president and general manager of Borden's Soy Processing Co., Waterloo, Iowa. Smith was formerly with Archer-Daniels-Midland Co., Minneapolis, Minn.

* * * *

Plans are being made to accommodate the crushing of soybeans at the Columbia, S. C., Swift & Co. oil mill. Soybean acreage has greatly increased in the section.

* * * *

West Tennessee Soya Mill, Tiptonville, Tenn., has increased its storage capacity about 5,000 tons by the erection of two new concrete storage tanks, making a capacity of about 28,000 tons soybean storage for this plant. Tom Hutchison, superintendent, was in charge of construction.

* * * *

Recently elected fellows of the American Society of Agronomy were J. C. Hackleman, University of Illinois professor of crops extension, Urbana, Ill.; and William C. Etheridge, chairman of the department of field crops at the University of Missouri.

* * * *

A new feed plant capable of producing 480 tons of feed per day is planned by Mississippi Valley Grain & Feed Co., Muscatine, Iowa. It will supplement the present plant.

* * * *

Advertising and sales promotion division of Black Sivalls & Bryson, Inc., has been moved from 720 Delaware to 7500 E. 12th St., Kansas City, Mo.

* * * *

New developments in drying oils were discussed by Dr. Alexander Schwarcman, vice president and director of research of Spencer Kellogg & Sons, Buffalo, N. Y., before the November meeting of the Buffalo Paint, Varnish & Lacquer Association.

* * * *

Elmer Field Clark, 42, sales engineer in the farm equipment division of the Butler Manufacturing Co., died Nov. 19 at the Independence, Mo., sanitarium following a heart attack. He had been with Butler since 1942, and formerly was an agricultural engineer for U. S. Department of Agriculture.

* * * *

Dr. Carl V. Feaster, assistant agronomist for the U. S. Regional Soybean Laboratory in cooperation with the Missouri Agricultural Experiment Station at Columbia since 1944, has been appointed associate agronomist with the Division of Cotton and Other Fiber Crops and Diseases. He will be located at Princeton, Ky.

LEVER APPOINTMENT

JOHN L. PARRY

Appointment of John L. Parry as sales manager of the bulk edible department of Lever Bros. Co. has been announced at company executive offices in New York. Mr. Parry will have charge of sales for Lever's all-vegetable shortening used by the baking trade. His headquarters will be in Lever's general offices, 80 Varick St., New York City.

— s b d —

FUNK BROS. BUILD

The Funk Bros. Seed Co., Bloomington, Ill., has begun work on a new $750,000 solvent process soybean oil extraction plant with a 200 ton daily capacity.

Construction will be halted during the winter, but the new structure and its 500,000 bu. storage will be ready for the 1951 harvest, according to Eugene D. Funk, Jr., company president. The company's expeller units, with a daily capacity of 5,500 bu., will remain in operation together with the new units.

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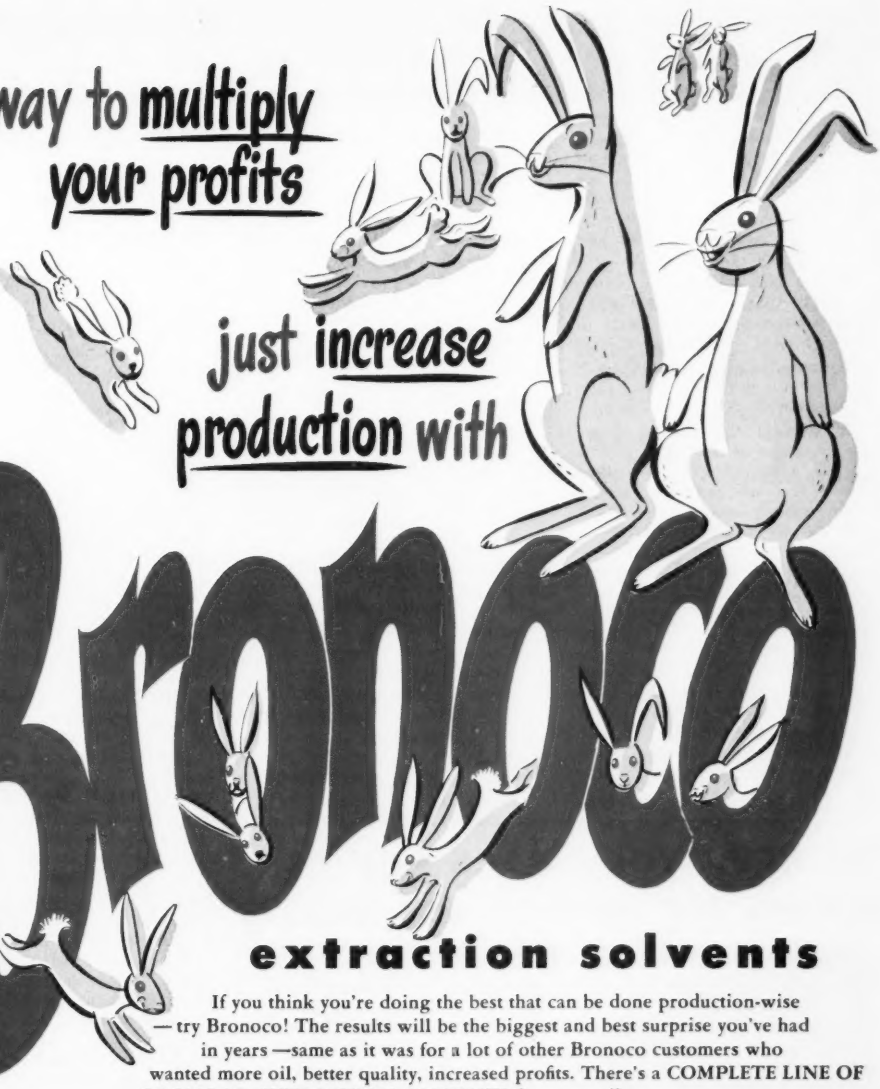

extraction solvents

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I'd like to have a copy of the booklet on Bronoco Extraction Solvents.

Name _____

Title _____

WASHINGTON DIGEST

1950 ACREAGE. Soybeans will have to run stiffer competition for acreage next year with corn and cotton because of the increased demand for these products created by the war and increased livestock production.

The Department of Agriculture has announced that corn acreage allotments will be continued in 1951—in the commercial corn producing area.

However, the plan is to set the allotments so high they will have little or no effect in curbing production.

Officials say the minimum corn acreage required to be safe next year is approximately 60 million acres in the commercial area—mainly the Cornbelt states.

This is an increase of 5 to 6 percent, not over 1950 acreage, but the average for the last 3 years. This acreage considered as a safe minimum approaches the peak within the commercial area during the era of hybrid corn.

Reason for a big increase in corn acreage next year is the need for a substantially bigger crop to ward off a possible feed shortage.

At the same time, USDA is hoping to step up cotton acreage in 1951 to 27 million acres, roughly 8½ million acres above this year.

Officials are shooting for a 16-million-bale crop in 1951 to supply the sharp increase in demand for cotton. Some officials say, however, that in the Southern Delta states it will be difficult to root out soybeans as a cash crop at current prices even with 40-cent cotton.

At present soybean prices, these officials say growers can return as much net profit as with higher priced cotton, due to the difference in labor costs.

However, USDA cotton men are counting on the incentive to build up cotton allotment bases to increase acreage sharply, especially in the Western part of the belt.

The concern over corn acreage is mainly one of getting enough of a crop next year so the carryover reserve won't be drained off too far, in a period of great war uncertainty.

This year's carryover of 859 million bushels is the largest on record. The total supply—reserve and 1950 crop—is only a little under the high point.

But this year's crop is of poorer feeding quality. Corn consumption in 1950 was larger than anticipated. It's expected to go higher next year. All livestock except sheep, horses, and mules, are on the increase.

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

At foreseeable yields, a 5 to 6 percent increase in acreage within the commercial corn area is considered the minimum necessary in order to keep the carryover next fall from dropping below around 500 million bushels.

With a war on that could grow bigger, even a 500-million-bushel reserve is considered plenty low. Unlike in 1940-41, a big increase in livestock production cannot be started this time. Meat consumption and production are both high now, and there is not enough feed in sight to sustain a sharp and extended boost in livestock feeding.

It's considered probable that the 1951 corn loan rate will be kept at 90 percent of parity, as an incentive to get the minimum acreage.

WHITHER PRICES? Which way are soybean prices going? It's pretty much guesswork with officials here, the same as with other people. But those who have formed reasonably sound judgments in the past size up the situation about like this:

They think the high speculative interest in soybeans has been a big factor in prices this fall and winter. General inflation psychology has contributed to this.

But probably more important, these officials feel, is the fact that farmers have done the best job of orderly marketing of soybeans in years.

Officials think the current situation justifies a strong soybean market. But 4 dollar soybeans, as some have talked, they think is out of the question.

Unless the outlook for the 1951 crop turns bad, or there is a decided stepup in tempo of the war, they doubt that the market will hit 3 dollars at the farm before summer.

The best informed here look for prices to run along at roughly current levels without any major breaks until spring. The March report on planting intentions is expected to have a big influence on prices during the late spring months.

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BREAD RULING. Senator Gillette of Iowa is asking that the next session of Congress set up a special committee of the Senate to continue the work of the subcommittee on agriculture to investigate ways to expand uses of farm crops, fats and oils, etc.

Authority for the present subcommittee expires with the 81st Congress.

Committee officials are thoroughly dissatisfied with the proposed Food and Drug Administration order on use of chemicals in bread. Among other things, the order proposes that no more than 3 percent of bread flour can contain soya.

Committee officials maintain that health is not a basis for limiting the use of soya in bread, and quote a New York health authority as saying that from a nutrition standpoint 6, rather than 3 percent, would be a more satisfactory figure on flour containing soya.

Food and Drug does not plan to come out with a final ruling on bread softeners this year, but expects to early in 1951, though the ruling probably will be modified.

OIL TRADING. The big increase in soybean oil futures trading on the Chicago market is recognition of the growing importance of soybeans in the national economy, USDA officials say.

Volume of soybean oil trading in October was half as large as that in the old, established, cottonseed oil market—776 million pounds of cottonseed oil compared with 398 million pounds of soybean.

In October 1949, the volume of soybean oil futures trading was only 17 million pounds. Practically all of the increase has come since last July.

As seen by Commodity Exchange Administration officials, this development is tangible evidence that the soybean has come of age as a major national product.

They point out that efforts have been made for 10 years to establish an adequate futures market for oil in New York. But until last year this was on the basis of refined oil. The contract was then amended in line with a study made by USDA, and put on a crude oil basis. Trading picked up. Chicago took note, established its own futures market, and has far eclipsed New York since last July.

Trading in soybean futures has also increased rapidly in recent years, reflecting the growing interest in all fats and oils since the war. CEA officials say that the soybean and cottonseed oil markets are by far the most active of any farm commodity markets this fall.

Volume of trading in soybean futures is also large—much larger than that in the major grains. October volume of soybean trading was greater than the combined trading in wheat and corn. The figures: Soybeans 396 million bushels, wheat 253 million, corn 132 million, oats 70 million, and rye 19 million.

—s b d—

DIGEST IN GERMANY

Volumes 9 and 10 of the Soybean Digest and a copy of the 1950 Soybean Blue Book have been sent to E. V. Boguslawski, director of the Institute for Plant Culture and Plant Research for the University of Giessen, Germany, for research use in the library there.

The University library had been bombed out during the war, and very little in the way of books or reference material was left in the library. Geo. M. Strayer, secretary-treasurer of the American Soybean Association, and J. L. Cartter of the U. S. Regional Soybean Laboratory visited the library when they were in Germany in 1949 and found it had been unable to obtain any books from outside of Germany for reference material.

Arrangements were made by the American Soybean Association with the food and agriculture branch of Economic Cooperation Administration to get the volumes to Professor Boguslawski in Germany.

—s b d—

WHIPPING AGENT

Improvement in the preparation of modified soy protein, and more particularly modified glycinin, for use as a whipping agent in making candies, meringues, and other foods is the subject of a recent patent.

U. S. Patent 2,502,029, issued Mar. 28, 1950, on an application dated Jan. 26, 1946, to Louis Sair, St. Louis, Mo., and Richard Rathman, Decatur, Ind., assigned to Central Soya Co., Inc., Ft. Wayne, Ind.

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IN THE MARKETS

November Markets Up

The markets were under the domination of world forces during November, and sharp fluctuations followed the turns in events in Korea. Markets were extremely nervous at times.

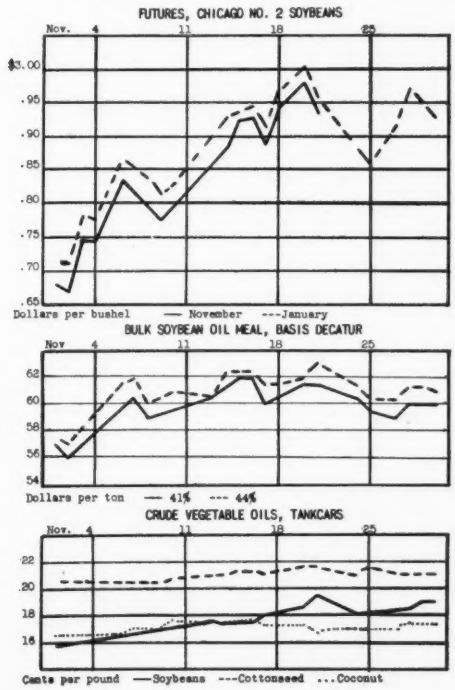
But on the whole all markets advanced substantially for the month, feeling the effect of inflationary forces and the general realization that we are in for a long period of heavy defense spending.

At times advances were spectacular, as beans, meal and oil all reached new highs for the season. Strength in soybean oil was a powerful factor in the advance in the soybean market. Meal and oil were in good demand, as both were offered at attractive prices as compared with competing lines.

There was a temporary wave of selling when the cash soybean market neared the $3 mark. But the large volume of soybeans held by growers appeared to be in strong hands and there appeared little likelihood that it would be released soon.

Production of 44% protein soybean oil meal was at capacity. But processors were reported to be having trouble at times obtaining a full supply of soybeans.

Commodity Credit Corporation entered the market during the week of Nov. 13-17 for purchase of 8.7 million pounds of crude soybean oil and 1.9 million pounds



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of refined soybean oil for export shipment to Austria under ECA procurement. This is the first time CCC had been in the market since May. Oil will be shipped before Apr. 30.

It was reported that Spain was in the market for 5,000 tons of soybean oil.

Volume of trading in protein meals on the Memphis Merchants Exchange during October was the largest for any month in 9 years.

The Chicago Board of Trade has ordered a committee appointed to arrange for trading in soybean oil meal futures.

November No. 2 soybeans opened for the month at Chicago at $2.68 and closed at $2.93¾ Nov. 21. High was $2.98 Nov. 20. January No. 2 soybeans closed at $2.92½.

Bulk soybean oil meal, 44% basis Decatur opened at $57.50 and closed at $61. Low was $57 Nov. 2 and high was $63 Nov. 21.

Crude soybean oil in tankcars opened for the month at 15¾c, the low and closed at 19c. High was 19½c Nov. 20.

Supplies of soybeans for 1950-51, from present indications, will be the largest of record and are currently estimated at 278 million bushels, an increase of 50 million bushels over the previous record, reports Production and Marketing Administration. Crushings of soybeans during the 1949-50 season totaled 195 million bushels which was about 12 million bushels above the previous record.

Stocks of only 2,822,000 bushels of old soybeans remained Oct. 1. These compare with a high of 14,153,000 bushels on Oct. 1, 1944, and the low of 2,564,000 on Oct. 1, 1948, for the 9 years of record.

MEMPHIS SOYBEAN OIL MEAL FUTURES CLOSINGS NOV. 30*

Decatur sacked basis, per ton: Dec., flat 64.35; Jan., flat 64.00; Mar., 63.75 @ 64.25; May, 64.00 @ 64.30; July, flat 65.00; Oct., 54.00 @ 55.25. Sales: 8,500 tons.

NEW YORK SOYBEAN OIL FUTURES CLOSINGS NOV. 30*

Dec., 18.25b; Jan., 17.25; Mar., 16.28b; May, 15.90; July, 15.85; Sept., 15.45. Close: Oct. 19.40n. Sales: Dec., 16; Jan., 9; Mar., 38; May, 70; July, 24; Sept., 1; switches, 8. Total sales: 166 contracts.

* Reported by Chicago Journal of Commerce.

● **FACTORY USE SOYBEAN OIL.** Factory consumption of crude soybean oil in September totaled 158,491,000 lbs., reports Bureau of the Census. Consumption of refined soybean oil totaled 149,272,000 lbs.

Crude soybean oil entered into the following uses in September: soap 106,000 lbs.; paint and varnish 343,000 lbs.; lubricants and greases 57,000 lbs.; and other inedible products 3,106,000 lbs.

Refined soybean oil was used as follows in September: shortening 63,479,000 lbs.; margarine 3,079,000 lbs.; other edible 5,477,000 lbs.; paint and varnish 6,959,000 lbs.; lubricants and greases 10,000 lbs.; linoleum and oilcloth 2,129,000 lbs.; other inedible products 5,684,000 lbs.

Hydrogenated edible soybean oil was used as follows in September: shortening 20,406,000 lbs.; margarine 22,340,000 lbs.

● **SHORTENING SHIPMENTS.** Reported by the Institute of Shortening and Edible Oils, Inc., in pounds.

Week ending Oct. 28	5,934,472
Week ending Nov. 4	6,403,025
Week ending Nov. 11	6,768,548
Week ending Nov. 18	5,522,945

Grand total of shortening and edible oil shipments for the third quarter 1950 was 906,694,000 lbs., compared with 648,984,000 lbs. in the second quarter, reports the Institute.

● **PROCESSING OPERATIONS.** Reported by Bureau of Census, Department of Commerce, for August, September.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, SEPTEMBER 1950—AUGUST 1950

Products	Production		Shipments and transfers		End of month Stocks	
	Sept. 1950	Aug. 1950	Sept. 1950	Aug. 1950	Sept. 30, 1950	Aug. 31, 1950
SOYBEAN:						
Cake and meal†	318,339	363,695	332,297	364,508	35,224	49,182
Lecithin‡	1,094,649	1,351,705	1,222,180	1,493,782	346,767	474,298
Edible soy flour, full fat†	488	341	514	447	117	143
Edible soy flour, other‡	4,789	§5,935	4,800	6,299	1,165	§1,176
Industrial soy flour†	1,456	(*)	(*)	(*)	660	(*)

§ Revised.
* Not shown to avoid disclosure of individual operations.
† Unit of measure in tons. ‡ Unit of measure in pounds.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES, SEPTEMBER 1950—AUGUST 1950
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Sept. 1950	Aug. 1950	Sept. 1950	Aug. 1950	Sept. 30, 1950	Aug. 31, 1950
U. S.	213,423	153,128	409,017	462,485	74,508	270,102
Arkansas	6,089	(*)	3,763	(*)	2,355	29
Illinois	96,099	59,275	169,517	177,775	26,018	99,436
Indiana	(*)	(*)	41,105	44,956	(*)	(*)
Iowa	25,695	24,360	72,045	91,593	10,323	56,673
Kansas	5,812	3,738	2,139	6,187	(*)	(*)
Kentucky	(*)	2,903	14,367	12,629	1,226	(*)
Minnesota	10,871	11,040	15,288	16,536	876	5,293
Missouri	8,901	6,822	16,561	17,506	8,537	16,197
Nebraska	(*)	(†)	(*)	(*)	(*)	(*)
N. Carolina	(†)	(*)	(*)	3,118	104	(*)
Ohio	11,896	9,281	54,929	68,341	4,475	47,508
Texas	(*)				(*)	
All other	48,239	36,212	19,303	23,844	20,594	44,966

* Included in "All other" to avoid disclosure of individual operations.
† Receipts exceeded by reshipments of beans previously received and held in the State. U. S. receipts are on a net basis, excluding transfers between mills.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, SEPTEMBER 1950—AUGUST 1950

State	Crude oil (thousand pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	Sept. 1950	Aug. 1950	Sept. 30, 1950	Aug. 31, 1950	Sept. 1950	Aug. 1950	Sept. 30, 1950	Aug. 31, 1950
U. S.	137,695	157,026	20,071	27,478	318,339	363,695	35,224	49,182
Arkansas	1,117	(*)	412	205	3,112	(*)	374	187
Illinois	58,997	62,656	5,056	10,221	126,088	131,610	14,768	17,795
Indiana	13,938	16,206	1,459	2,200	32,451	38,040	6,007	(*)
Iowa	24,086	30,833	4,057	5,769	58,737	74,609	2,864	6,553
Kansas	720	2,125	305	486	1,594	5,050	(*)	(*)
Kentucky	4,883	4,547	421	377	10,376	9,839	890	1,133
Minnesota	5,030	5,075	1,143	1,517	12,678	13,300	834	1,552
Missouri	5,039	5,384	1,289	824	12,836	14,236	1,916	3,194
Nebraska	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
N. Carolina	(*)	927	(*)	(*)	(*)	2,423	584	1,148
Ohio	18,154	22,221	3,488	3,262	44,336	54,800	1,248	2,743
Oklahoma							(*)	
Texas							(*)	(*)
All other	5,731	7,052	2,441	2,617	16,131	19,788	5,739	14,877

* Included in "All other" to avoid disclosure of individual operations.

● **INSPECTIONS.** The quality of the soybeans marketed in September was the lowest of any month since September 1943 due largely to the moisture content of the new crop soybeans, according to reports to the Department of Agriculture.

Only 49 percent graded No. 2 or better compared with 73 percent in August and 70 percent the September average for the 10 years 1941-50. Seventy-eight percent graded No. 2 or better for the entire season compared with 75 percent the preceding year and 68 percent the ten year average.

Inspected receipts of soybeans in September were double those in August and above average. September receipts totaled 2,770 cars compared with 1,339 cars in August and 2,053 cars the 10-year average. Receipts for the season totaled 98,653 cars compared with 112,-

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825 cars the preceding year and 77,069 cars the 10-year average.

Inspections of soybeans in September included the equivalent of 6 cars inspected as cargo lots and truck receipts equal to about 66 cars.

● **IMPORT CONTROL.** The United States Department of Agriculture announced Nov. 27 the removal of several fats and oils from import control.

The action, effective Nov. 25, is in line with the Department's general policy of removing import controls as soon as practicable. The commodities removed from import control are: lard, edible and inedible tallow, oleo oil and stearine, palm oil, fatty acids, soap and soap powder.

The commodities remaining under import control are butter, peanuts, peanut oil, peanut butter, soybeans and oil, sunflower seed and oil, cottonseed oil, flaxseed, flaxseed screenings, linseed oil, combinations and mixtures of animal and vegetable oils, lard compounds, rice and rice products.

● **SOYBEAN GLUE.** Consumption of soybean glue by the softwood plywood industry in September totaled 4,198,000 lbs. compared with 4,397,000 lbs. in August; and 3,337,000 lbs. in Sept. 1949, reports Bureau of the Census.

Consumption of phenolic resin glue in September was 3,817,000 lbs.; and consumption of all glues by the industry was 9,079,000 lbs.

Stocks of soybean glue Sept. 30 totaled 2,591,000 lbs. compared with 2,254,000 lbs. Aug. 31; and 1,404,000 lbs. Sept. 30, 1949.

● **SOYBEAN STOCKS.** Production and Marketing Administration's commercial grain stock reports.

	Nov. 7	Nov. 14	Nov. 21	Nov. 28
Atlantic Coast	145	790	1,171	1,482
Gulf Coast	225	476	153	375
Northwestern and Upper Lake	950	1,424	1,577	1,542
Lower Lake	6,655	6,548	6,758	6,572
East Central	2,554	2,902	3,102	2,983
West Central				
Southwestern & Western	2,100	2,789	3,012	2,904
Total current week	12,629	14,929	15,773	15,858
Total year ago	11,949	13,851	15,082	15,580

● **MARGARINE PRODUCTION.** Total production of margarine in September was 65,816,000 lbs. compared with 84,129,000 lbs. in August, reports Bureau of the Census.

Production of uncolored margarine in September totaled 24,516,000 lbs., compared with 41,300,000 lbs. of the colored.

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to quote Gilbert Kessler:
"SHANZER Economy Grain Drier . . . very profitable part of our plant investment."

and "We have found the Economy Drier to be everything you have claimed . . ."

TYRONE MILLING COMPANY
TYRONE, PENNSYLVANIA
Golden Eagle Flours · Ty-Co Feeds
September 20, 1950

H. M. Shanzer Co.
85 Bluxome Street
San Francisco 7, California.

Gentlemen:

We are pleased to report that we have just completed another very successful wheat drying season with the Shanzer Economy Grain Drier, which we installed during the spring of 1949. This machine has developed into a very profitable part of our plant investment.

During the 1949 season we handled 50,000 bushels of wheat, and 40,000 bushels of corn, and now in 1950, we have handled 40,000 of wheat. This is an exceptionally good record in our area, where high moisture grain requires as much as 10% reduction by the drier before we can ship or store it.

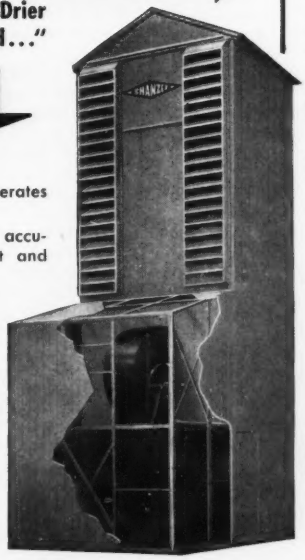
We have found the Economy Drier to be everything you have claimed for it, and to be well built and rugged in every respect, as well as extremely simple to operate. It has performed satisfactorily, and the field service you rendered us has been all that has been required.

We would gladly recommend the Shanzer Economy Drier to any country elevator having medium capacity drier requirements.

Very truly yours,
TYRONE MILLING CO.
Gilbert M. Kessler

HERE ARE OUR CLAIMS:

1. SHANZER Economy Grain Drier operates at *low cost.*
2. SHANZER Economy Grain Drier accurately controls moisture content and temperature.
3. SHANZER Economy Grain Drier dries 100 to 300 bushels per hour.
4. SHANZER Economy Grain Drier follows the time-tested BERICO principle of uniformly processing every kernel of grain in warm air.
5. SHANZER Economy Grain Drier will bring you bigger profits through accurate moisture control!



Write today for complete information

H. M. SHANZER CO.
85 Bluxome Street
San Francisco 7, California

Results Good from Defoliation in Ohio

TO THE EDITOR:

Several weeks ago you included an item from Irwin, Ohio, to the effect that defoliated soybeans were molding. Since we were actively interested in the defoliation of soybeans, I personally checked.

The attached letter will give the results of my findings.—*Francis A. Nau, Nau Grain Co., Urbana, Ohio.*

(Portions of Mr. Nau's letter, which was written to Ralph E. Young of the Ohio Aviation board. follow.)

Dear Mr. Young:

. . . You requested our reaction to soybeans which had been defoliated by aerial spraying. We have delayed answering as we wished to get an official federal inspector's report on beans delivered to us from the Kirby-Jones farm.

The federal inspection showed as follows: moisture 10.1%; total damage 0.8 percent; total foreign material 0.8 percent; splits 15 percent.

You will note that the moisture is very low even though these beans were among the first harvested in this area. The damage was less than the average carlot damage as reported by federal inspectors covering our first cars shipped. This definitely refutes the contention or rumor that beans which had been defoliated had molded in the pods.

I too had heard that rumor, therefore I visited Mr. Robert Jones, operator of the Kirby-Jones farm, and inspected the beans before harvesting. There was no evidence of spoilage in excess of that found in other fields which had not been defoliated.

In harvesting, the various plots were not kept separate therefore no separate inspections were made. After the beans were harvested I talked with Mr. Jones who advised that the beans seemed normal and had no evidence of spoilage or unusual shattering. He was fully satisfied with the defoliation and stated that he noticed no appreciable difference between the different types of defoliant.

We handled the dust and Early Frost since we were distributors for both. Thus far the reaction from our farmer customers has been very good. In every instance the beans delivered to us graded No. 2 with no discount for moisture or other grade factors.—*Francis A. Nau, Nau Grain Co., Urbana, Ohio.*

A report from G. G. McIlroy in the October Soybean Digest stated: "Reports come in that beans defoliated 10 days ago are molding in the pod due to continued damp weather."—Editor.

Veteran in Bean Business

TO THE EDITOR:

This is our 42nd year handling soybeans, handling soybeans before you were born, but in a very small way. They were first sold at $1 per bushel. The farmer would buy a peck or one-half bushel to try them out, planting them with corn and cutting up the corn using it for shock fodder or silage.

For 10 years we averaged 100,000 bushels of soybeans for seed. But now wherever beans are seeded on good ground there is usually plenty of seed stock and the larger part of the business is gone; although when these new varieties come out there is a good business for a year or two.

You have a good magazine and want to congratulate you on what you are doing.—*W. G. Kelly, Kelly Seed Co., San Jose, Ill.*

LETTERS

THE PRESS

The Need for Industrywide Selling

"Business now appears to be agreed that responsibility for protecting an industry's total market is by and large an industry-wide responsibility," Dick Heath told the Tea Assn. "It is not the obligation of any one individual company. . . Total markets cannot be ignored, and as a result a relatively new concept of marketing has emerged. We now have two clearly established levels of selling in American distribution—the competitive brand selling level and the industry selling level."

The number of industries with cooperative selling efforts, he showed, has grown tremendously in the last 10 years. There were only 24 such associations in 1940, spending a little over 5 million dollars a year on promotion. By 1949, there were 120, spending nearly 26 million dollars annually. In the food and beverage field alone, Mr. Heath counted 32 industry associations. "This total," he said, "must be regarded as a highly significant development, one that is closely related to the responsiveness of people to advertising dealing in a broad way with ideas about things that are taken into the stomach."

Mr. Heath's list of industry-level advertising aims is very interesting indeed. He thinks industry ads bite more deeply into the product story and speak with more authority than brand ads; he also thinks industry promotion strengthens the appeals and validates the claims of individual brands. He feels an industry group can dig out and assemble authoritative data more easily than any individual company. He is convinced that industry advertising stimulates a more healthy type of competition among its members—that as a result of it they become more interested in developing new markets and less inclined to concentrate on swapping customers. Finally, he thinks industry advertising sets up a solid backdrop for store promotions, which become more effective and economical through industry support.

"Most cases of declining sales trends in the U. S.," according to Mr. Heath, "are almost solely due to changes in consumer attitudes. Industries experiencing declining sales trends almost always can help themselves through cooperative effort aimed at changing or modifying consumer attitudes."—*Tide.*

Tide points out an approach to marketing that is becoming general in all industry. The soybean industry is lagging behind many others, but sooner or later will have to recognize the trend and keep pace with it. True, soybeans and tea are different products. Every consumer is a potential tea drinker, but not a user of soy products, as such. But soybeans like tea have promotional problems that can be solved only on an industrywide level.—Editor.

YOU SAVE . . .

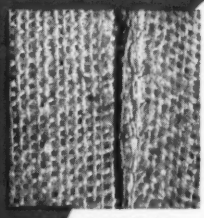
YOU SAVE . . .

YOU SAVE . . .

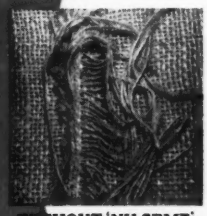
YOU SAVE UP TO $1 A TON
IN SACKING COSTS BY USING

'NU-SEME' BAGS

IN PLACE OF NEW BAGS



WITH 'NU-SEME'



WITHOUT 'NU-SEME'

Why pay the price of new bags when 'NU-SEMES' look just as good . . . and are just as strong!

'NU-SEME' bags are not ordinary "second-hand" bags. They ARE individually inspected, expertly reconditioned bags . . . re-processed from only the highest grade used bags obtainable. Each bag is vacuum cleaned, turned inside out . . . and the rough seams folded in, re-sewn and neatly covered by Western's exclusive 'NU-SEME' process. The old seams are re-inforced . . . made stronger and neater than ever! The 'NU-SEME' bag can then be colorfully imprinted like any new bag.

SEND FOR FREE SAMPLE!

Start saving NOW. Write today for free information and receive an actual sample of a 'NU-SEME' bag.

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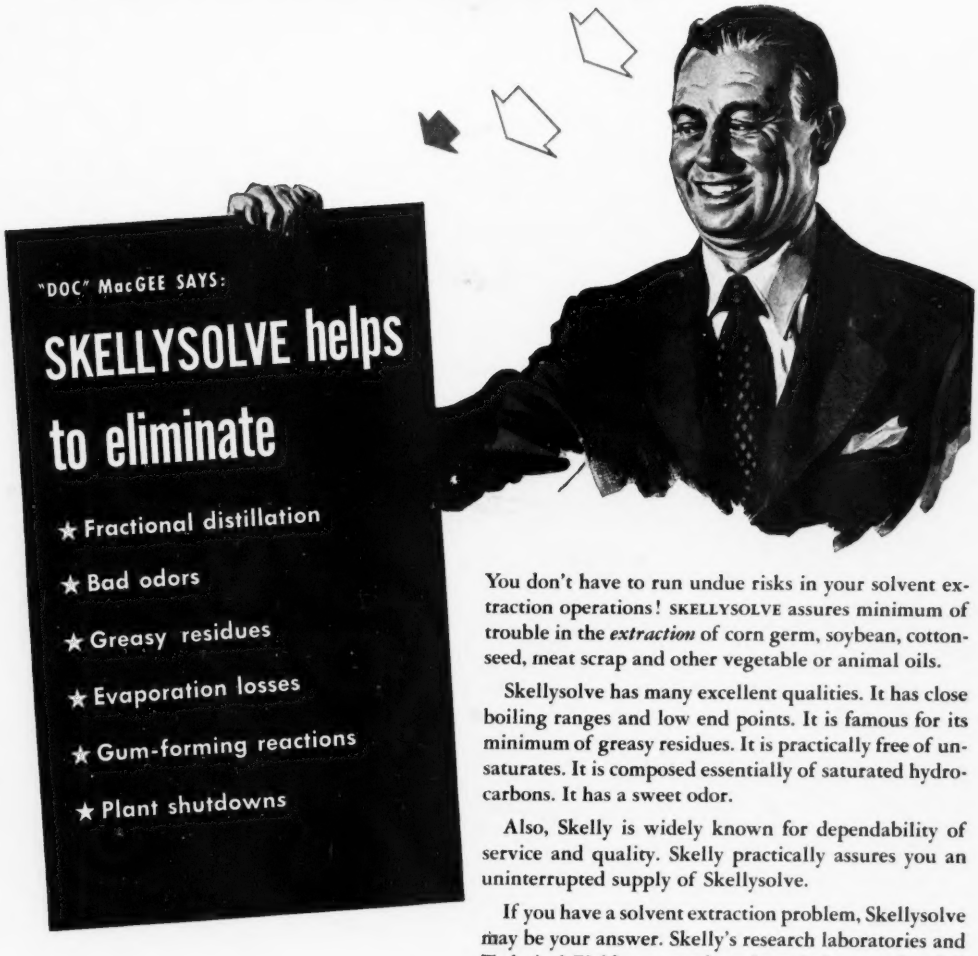
C

How to Reduce Solvent Risks in Extraction Operations...



You don't have to run undue risks in your solvent extraction operations! SKELLYSOLVE assures minimum of trouble in the *extraction* of corn germ, soybean, cottonseed, meat scrap and other vegetable or animal oils.

Skellysolve has many excellent qualities. It has close boiling ranges and low end points. It is famous for its minimum of greasy residues. It is practically free of unsaturates. It is composed essentially of saturated hydrocarbons. It has a sweet odor.

Also, Skelly is widely known for dependability of service and quality. Skelly practically assures you an uninterrupted supply of Skellysolve.

If you have a solvent extraction problem, Skellysolve may be your answer. Skelly's research laboratories and Technical Fieldmen stand ready to help you. Get full particulars now!

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